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IMPROVED FAUCET.

Improvement in Faucets.

The annexed engravings are views of an improvement in Faucets, for which a patent was granted to Richard M. Bouton, of West Troy, N. Y., on the 18th of last month (April, 1854.)

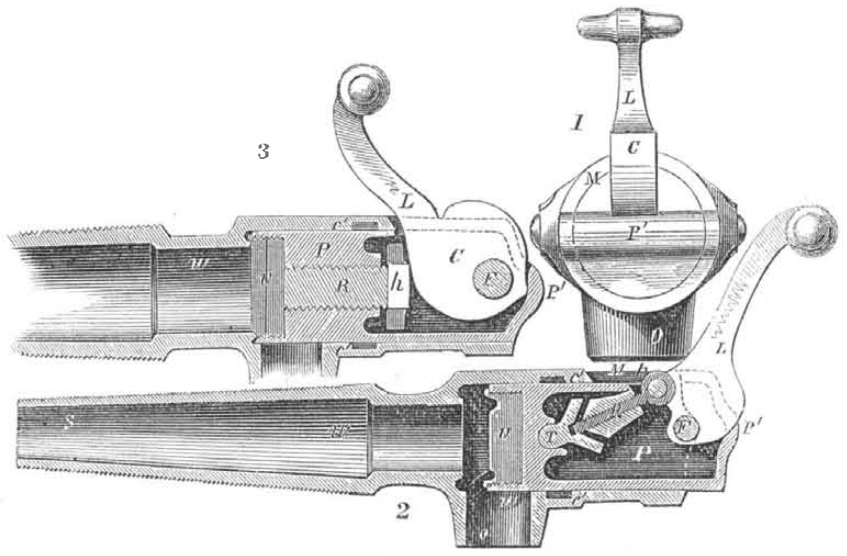
Figure 1 is a front end view showing the head of the faucet. Figure 2 is a horizontal longitudinal section of the faucet, and fig. 3 is a perpendicular longitudinal section. The same letters refer to like parts on all the figures.

The prominent defects belonging to most of the faucets in use, are, 1st. The impossibility of refitting while in use—should a leak occur—without detaching the faucet from its place. 2nd. The skill and labor to refit by grinding. 3rd. The universal contraction of the water-way through the valve seat or plug. 4th. The slow motion of the valve when moved by a screw; or if the threads of the screw are made "quick," the liability of the valve to open by pressure of the liquid. The object of this new patent faucet is to obviate these defects; for should a leak occur while it is in use, it may at once be checked without displacing the faucet, by merely increasing the pressure on the valve by means of the adjusting screw, R. The cam is also so shaped that the valve cannot be opened by the pressure of the liquid, nor by accident. There is no contraction in the water way, and a purchaser will not have to pay for a faucet of 1½ inches bore, to obtain an inch of efficient water-way.

The valve, *v*, is attached to one end of a sliding piston, P, working in the head of the faucet, beyond the outlet, O, to the valve seat, which is opened and closed by the piston and valve, through the lever, L, operating the cam, C. It is closed by the pressure of the cam on the head of the adjusting screw, R, as in fig. 3, or by straightening the toggle-joint at T, fig. 2; it is opened by the reverse motion of the lever, L—the cam, C, pressing on the shoulder, P′, as in fig. 2. Or the toggle-joint may both close and open the valve by having its lower end hinged to the piston, P, without a cam to press on P′.

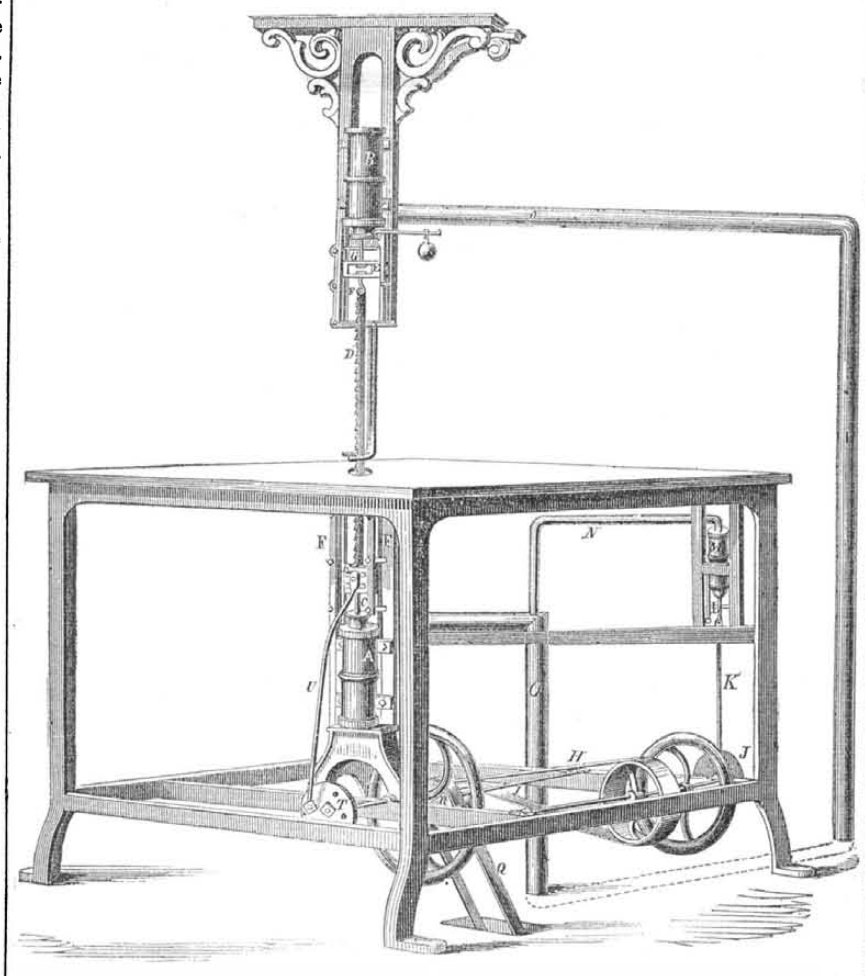
The pressure on the valve may be increased or diminished at any time while the faucet is in use, by turning the screw, R, by means of a circle of holes in its head,—*h* being one—or by turning the screw of the toggle-joint. The valve may be in all cases a disk,—either metallic, or any proper elastic or non-elastic substance.

When this faucet is to be used to draw off acids, the water-way, *w*, is made of glass or porcelain. To prevent the liquid penetrating the head of the faucet, from O to the fulcrum, F,—while operating—a packing is inserted in a circular groove at *c′*. The cam works in a mortice through the circumference of the faucet, at M, and a corresponding one in the piston. By detaching the screw fulcrum, F, the piston and valve may be withdrawn from the head of the faucet, for examination or refitting. S is the shank, which is inserted into the barrel, penstock, &c. The parts of this faucet may be somewhat differently arranged, while the distinct combination claimed in the patent may be the same: such as the lever, L, being detached from the cam, C, and affixed to one or both ends of the fulcrum pin, &c. The use of faucets being so general, every improvement in them, however trifling, is of no small importance to the inventor and the community.



More information may be obtained by letter addressed to Mr. Bouton, at West Troy, Albany Co., N. Y.

STRAINING SAWS WITHOUT A GATE.



This figure is a perspective view of an improvement in Saw Mills, for which a patent was granted to Jackson A. Rapp & Edward S. Wright, of Buffalo, N. Y., on the 26th of last July, (1853,) and for which foreign patents have also been obtained through the "Scientific American Patent Agency."

The nature of the invention consists in the application of compressed air, so applied to piston heads working in cylinders at each end of the saw, and to which heads the saw is connected at its ends by rods, as that the tendency of the compressed air to push or pull apart the piston heads shall be exerted to the straining of the saw, and thus keep it perfectly strained without the use of a gate or saw frame.

Two cylinders are placedin a direct vertical line with each other, one of which, A, is below the table or floor of the mill, and the other, B, is suspended from above the table at any suitable distance. These two cylinders are provided with piston rods, C, each having a piston head with suitable packing, working in said cylinders. The saw, D, is connected at its ends, to each of the piston rods, in any suitable manner, and these rods, at the ends of the cylinders next the saw work through stuffing boxes—the other ends, viz., the top of the upper one, and the bottom of the lower one, may be left open. The packing for the piston heads, to answer a good purpose, is a simple leather disk, clamped between two concave iron plates—the leather extending slightly beyond the peripheries of the iron disks. A cross-head, E, is attached to each end of the saw, and suitable guide rods, F, for them to slide upon as the saw vibrates.

Power of any kind may be applied through the shaft which carries two pulleys, over one of which passes the endless band, H, and thence to a pulley or drum on the shaft, I, to the end of which shaft is attached a wheel, J, to the wrist pin of which is secured the connecting rod, K, the other end of said connecting rod being hinged to the lower end of the piston rod, L, of the air pump, M, and by which arrangement of parts the air pump is worked—its piston head and packing being similar to that used in the cylinders, A B. From the top of the air pump, a pipe, or tube, N, leads to, and connects with the pipe, O, which connects the two ends of the cylinders nearest to each other, together; that is, so that the air shall be forced into the cylinder between the piston heads and the packed or tight end of the cylinders, and exert itself in forcing apart the piston heads. But the piston heads being connected together by the saw, this force exerts itself in straining it up. A safety valve of any of the ordinary well-known constructions is arranged on the pipe, O, so as to allow the excess of air to escape. There is no escape of air except by leakage, consequently no valves to operate or chambers to empty. The air pump keeps up the supply, and as the piston head in either cylinder approaches the mouth of the inlet pipe, it drives the compressed air before it down or up into the other cylinder, as the case may be, when the other piston head is receding from the inlet pipe and making room to receive it, and it thus travels by the action of the pistons from one cylinder to the other. If it were possible to make the cylinder and packing perfectly air-tight, without too much friction—the chambers and pipes once filled with air, would continue for an indefinite period to keep the saw strained, but as this is not practical, the air pump is used to start and supply the air. It is found advisable also, to have the air pump so arranged that it can be operated independently of the saw. As it will be found necessary sometimes to strain up the saw before the mill is ready to start, or at least before the feed is put on.

The belt, Q, passes around the pulley, R, on the main shaft, and thence around another pulley on the shaft which carries the wheel, T, to which, by a wrist pin, is connected the pitman, U,—the other end of said pitman being attached to the lower cross head, and through these several parts the saw is driven.

Instead of using the direct action of the compressed air for straining the saw, as above described, it may be done by creating a vacuum in the cylinders, in which case the connecting pipe which connects the two cylinders, should be placed at the other ends of the cylinders, and the power of the air pump be used to exhaust the air from the cylinders.

The advantages of a saw strained without a gate or saw frame are numerous—a thinner saw can be used, requiring less power to drive it, and saving in size of the kerf; it can be run at three or four times the velocity of a saw in a gate, with perfect safety, and at such speed as would shake or jar a heavy gate to pieces; it leaves the table or floor of the saw mill unencumbered by the frame posts, and for circular sawing allows the board to be turned in any direction. It has been attempted, we believe, to employ steam force for straining saws, but so far as we can learn, without success.

More information may be obtained by letter addressed to D. B. Fuller, No. 12 Maiden Lane New York City.

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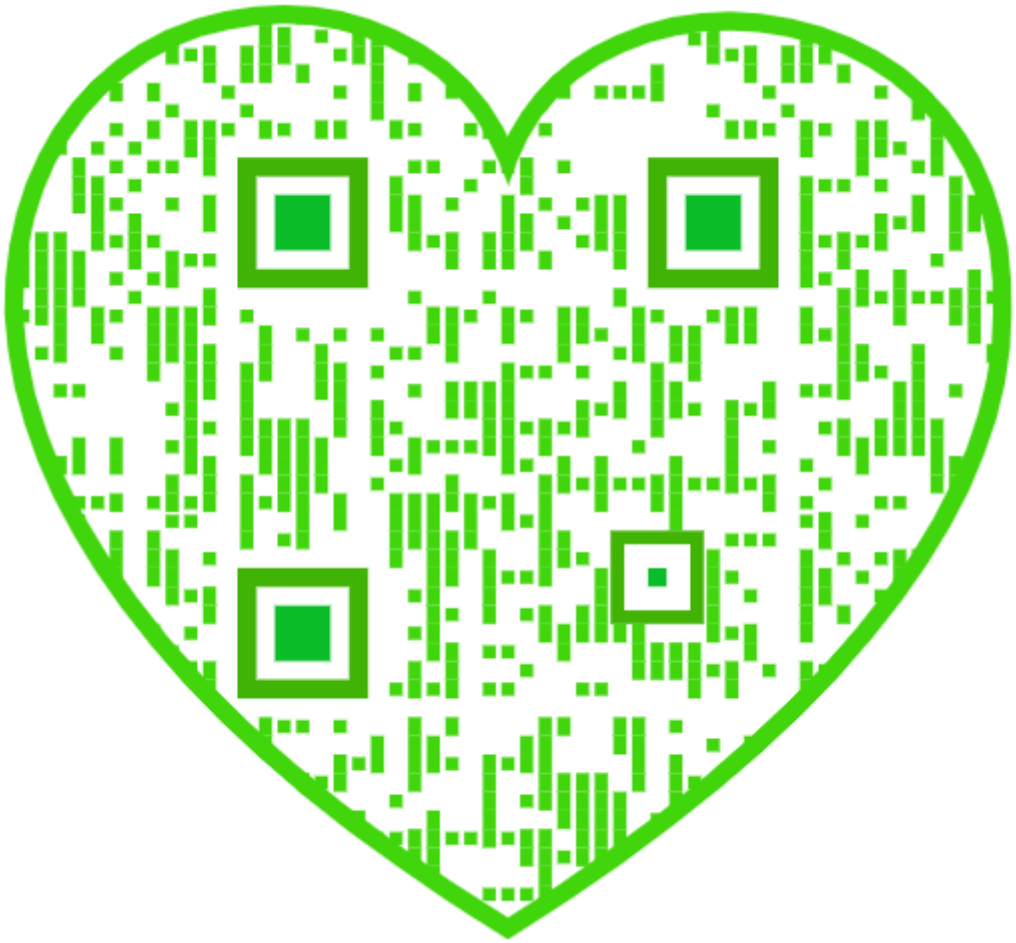

Flax Industry.—No. 7.

FLAX CULTURE IN GREAT BRITAIN.—The culture of flax is supposed to have been introduced into England by the Romans. It was not, however, until 1175, that flax was included in the enumeration of articles, the product of the soil, which were receivable in tithes, and at no period since then has England cultivated a quantity of flax sufficient for her own use, or consumption. In 1531, the culture of flax was made obligatory, it being enacted by statute, "that for every sixty acres of land fit for tillage, one rood should be sown with flax and hemp seed." Since then various unsuccessful attempts have been made to extend and improve the cultivation of this crop. In 1767 a tax was laid upon all foreign linens and the proceeds devoted to stimulating the efforts of English agriculturists; but so little inclined were the farmers to enter upon the work, that for five successive years no person claimed the bounty.

In spite of all the efforts of government, of public societies, and of private individuals, the culture of flax has never attained to any great importance, either in England or Scotland. It is in Ireland only that it has received any great developement. During the continental blockade by Napoleon, some districts in England entered quite extensively upon the cultivation of flax, when government at the same time, for the encouragement of home industry, imposed an almost prohibitory duty upon the importation of foreign linens; with the return of peace in 1815, the high rates were reduced, and a mere nominal duty exacted. Since then, the absence of protection, the increasing expense of hand labor, and the extent of the farms, which tend constantly to increase, has caused the culture of flax to be almost wholly neglected in England and Scotland.

In Ireland, on the contrary, at the same period, it was altogether different. The superabundance of population rendered labor cheap, and the division of land into small farms, which is carried to the utmost limit (many not embracing an extent of ten acres,) obliged the peasant to add the business of spinning and weaving to his other agricultural pursuits, the profits of the farm alone being insufficient for the support of himself and family. At the time of the introduction of mechanical spinning, each farmer had his crop of flax, and the demand for the product of the spinners regulated the market prices.

In this way the manufacture of flax was even more an object with the farmer than its cultivation, as it occupied the female members of his family throughout the entire season, in the different processes, until they sold the flax in the form of yarn. The manufacture of the yarn into cloth afforded employment to another numerous class—the linen-weavers—who were also small farmers. Every three weeks or so, a web or parcel of linen, containing a specified number of yards, usually about fifty-two, was brought to market, besides allowing the manufacturer a few days to devote to his little farm. The growth and manufacture of flax, through its different stages, thus afforded remunerative employment for almost every class of the population of the North of Ireland, and "may be regarded," say Mr. Sproule, "as in some degree contributing to the industrious habits and general intelligence, so characteristic of the inhabitants of this portion of the island."

From the earliest periods, there is every reason to believe that the inhabitants of Ireland were acquainted with the valuable qualities possessed by the fibre of the flax plant. The Irish name for flax is *Lhin*, which word, according to Dr. Hodges, is also applied to thread, while the term *Anairt*, which is used to express a kind of coarse linen cloth worn by the peasantry, is, according to Dr. O'Donovan, of Queen's College, a word of the greatest antiquity, having no cognate expression in any other language with which he is acquainted. "In the Brehon laws, also, we find it enjoined that the *Brughaidhs*, or farmers, must be acquainted with the mode of working flax. The linen shirt, dyed yellow, appears to have been a national dress; and the celebrated Jesuit, Edmund Campion, speaking of the "meere" Irish, describes their fondness for capacious linen garments. "Linen shirts," he says, "the rich doe weare for wantonness and bravery, with wide hanging sleeves, playted; thirtie yards are little enough for one of them."

But whatever may have been the date at which the flax was first known in Ireland, the cultivation and manufacture of the same did not attain to any great importance or notoriety, until the time of the expulsion of the Huguenots from France, by the revocation of the Edict of Nantz. Many of these refugees, who had carried on the linen manufacture in their own country, were attracted to England by their attachment to the Prince of Orange, and were afterwards induced to settle in the North of Ireland. Among the most celebrated of them was Mr. Lewis Cromelin, who, at that period, obtained a patent from government for carrying on and improving the linen manufacture, accompanied by a grant of eight hundred pounds per annum, as interest for the sum of £10,000 to be advanced by him or by his procurement, as a stock for carrying on the same; two hundred pounds per annum were further granted to him for his superintendance of the undertaking, with the sum of one hundred and twenty pounds per annum for three assistants, and an annual allowance for the support of a French minister for his little colony. These advantages he enjoyed for many years, and afterwards a Public Board was constituted for the further improvement of the linen manufacture, with an annual grant of £20,000 voted to it by Parliament, which was continued to the Linen Board for upwards of a century.

"The stimulus," says Mr. Sproule, "thus given to the extension of the linen manufacture in Ireland, together with the circumstance of flax being at that period a highly remunerative crop, caused it to spread rapidly throughout the country. The Linen Board appointed inspectors, or superintendants, to each of which was allotted a certain district, and the duties of these officers consisted in affording instruction to such as were desirous of receiving it, and of carrying the plans of the Board into effect. Flax seed were distributed among those who could procure satisfactory testimonials of having a quantity of land prepared for its reception, and premiums were awarded for the extension of the crop, the value of the premium depending upon the extent devoted to it."

The efforts of the Linen Board appear to have been directed more to the *manufacture* of flax, than to the introduction of an *improved system of cultivating it*, and in this department their exertions were not made in vain. Stephenson, in his history of the "Flax and Hemp Manufacture of Ulster," says, "that in the palmy days of the linen manufacture, in the North of Ireland, yarn was spun so fine that twenty and sometimes thirty hanks only weighed one pound; and that a young woman in Comber, County Down, frequently produced sixty-four hanks from a pound of flax; each thread round the reel being two and a half yards long —120 threads in each cut, and 12 cuts in each hank."

(For the Scientific American.)

Madder.

The subject of the following communication is of so great importance to various interests in our country, that I think the writer has performed a highly acceptable service in making the investigation, and it is my hope that among the numerous readers of the "Scientific American," there are many who can influence their friends to engage in the culture of madder, as a profitable crop, adapted to a broad belt of surface, in different States. A. A. HAYES.

16 Boylston s., Boston.

LOWELL, Mass., May, 10, 1854.

ITS CULTURE, ANALYSIS, AND USES.—At the request of Dr. S. L. Dana, of this city, I have made several analyses of different kinds of madder ashes, with a view to discover, if possible, the reason of the superiority of the Avignon madders. By the addition of carbt. lime, even to Turkey madders, the colors are improved in stability and brightness; the French madders, as imported ground for use, need no such addition. The object of these analyses was to show whether there existed in French madders a larger amount of carb. lime than in the other varieties.

There are several theories as to the function of the chalk: by some it is supposed to act by saturating an acid present; by others it is thought that the combination of two different bases with the coloring matter, gives much more solidity to the dye, in consequence probably of a greater insolubility in the compound formed. Experiments made by M. Kœchlin—the celebrated calico printer of Mulhausen—seem to prove that in all instances of madder dyeing, under the influence of chalk, a certain amount of lime becomes added to the aluminous mordant, and in the subsequent clearing with a soap bath, some of the alumina is removed, and there remains upon the fiber of the cloth, a combination of the two earths, lime and alumina, in atomic proportions, or nearly so. The madders subjected to analysis were American, Avignon, and Turkey. The American was grown in Montague, Mass., on the farm of Martin H. Clapp, and the roots used were of four years' growth. The land upon which it was grown is the "intervale" lying near the Connecticut River; it was treated with twenty loads of strong green manure, and one hundred pounds of plaster to the acre; Indian corn was grown upon it the year previous to planting with madder. The next year the manure and plaster were applied as before, and the madder roots planted. The crop was cultivated the last three years in the same manner as potatoes, with the addition of one shovelfull of well rotted manure and a little plaster to each hill, late in the autumn of each year. The different samples were burnt in a muffle, without regard to the percentage amount of ash which each variety yielded.

The analyses were mainly made while at the Scientific School, under direction of Prof. W. S. Clark, in Amherst, Mass.

The different ashes were found to consist of

	American.	French.	Turkey.
Chlo. Sodium,	2·61	3·76	4·71
Carbt. Potassa,	7·45	4·40	5·50
Carbt. Soda,	39·23	9·78	22·71
Silica,	8·48	25·86	27·71
Phosphate Lime,	12·75	19·75	17·85
Carbt. Lime,	23·39	32·76	18·35
Carbt. magnesia,	6·05	?	3·14
Alumina,	——	3·66	?
	99·96	99·97	99·97

The American madder, when treated with from 4 to 6 per cent. of chalk, gives colors every way superior to the best French. The "pinks" and "roses" stand the process d'Avisage, furnishing colors which are more "pink" and "rosy" than the French; it also furnishes a purple of a much more desirable shade than that obtained from the French. Used in equal weights, the American gives deeper colors than the French, showing a greater percentage of coloring matter. The ground French madder, as imported, will, if treated with an additional amount of carbt. lime, furnish colors which are inferior to those produced by the same article without this addition.

The French madder will, if treated with a dilute acid, effervesce strongly. This effervescence will not take place by treating any other of the ground woods or plants used in dyeing, in the same way, and seems to indicate the presence of a free carbonate. The Dutch madders have always needed an addition of carbt. lime to produce brilliant and "fast" colors, but within a few years Dutch madders have been imported ground on the French process. These do not need any addition of carbt. lime. The Dutch madders, as formerly imported, will not effervesce when treated with a dilute acid. The new "Dutch roots ground on the French process," when treated in the same manner, show evident signs of the presence of a carbonate.

It would seem as if all that is needed to obtain as good a reputation for the American madders, as any in the world, is to have them ground on the French process, which, from the deportment of the different varieties of madder when treated with carbt. lime, would lead to the supposition, that there is a certain amount of carbt. lime added to the best French roots during the process of grinding.

There seems to be a fair inducement for the farmers and growers of New England to cultivate madder; for although Mr. Clapp labored under many disadvantages, such as building and procuring an entire set of apparatus, drying kilns, &c., and obtaining but about one-third of a crop from his land, as compared with the crops raised in Western New York, still he lost only the interest on the land cultivated.

It is to be hoped that some of our farmers may turn their attention to this subject.

In conclusion I would express my thanks to Dr. S. L. Dana for his assistance in obtaining the different varieties of madder, and for specimens of the different madder dyed cloths, together with information in relation to the cultivation of the American madder.

CHARLES T. CARNEY.

Lowell, May 10, 1854.

Grasshopper Food.

The Government of the United States holds its sway over the people of all nations, tribes, and tongues, and some of these are strange specimens of the genus *homo*. The natives of many parts of Africa and Asia make fine feasts of roasted locusts; but some of our aborigines are equal to them in that respect, the only difference being, that ours use grasshoppers for want of locusts. In that great country—California—there are a tribe of Indians called the "Diggers" whose gastromic tastes are thus described by the "Empire County Argus:"—

"There are districts of California, as well as portions of the plains between the Sierra Nevadas and the Rocky Mountains, that literally swarm with grasshoppers, and in such astonishing numbers that a man cannot place his foot to the ground while walking among them, without crushing great numbers. To the Indian they are a delicacy, and are caught and cooked in the following manner: A piece of ground is sought where they most abound, in the center of which an excavation is made, large and deep enough to prevent the insect from hopping out when once in. The entire party of 'Diggers,' old and young, male and female, then surround as much of the adjoining grounds as they can, and with each a green bough in hand, whipping and thrashing on every side, gradually approach the center, driving the insects before them in countless multitudes, till at last all, or nearly all, are secured in the pit. In the meantime, smaller excavations are made, answering the purpose of ovens, in which fires are kindled and kept till the surrounding earth, for a short distance, becomes sufficiently heated, together with a flat stone large enough to cover the oven. The grasshoppers are now taken in coarse bags, and after being thoroughly soaked in salt water for a few moments, are emptied into the ovens and closed in. Ten or fifteen minutes suffices to roast them, when they are taken out and eaten without further preparation, and with much apparent relish, or, as is sometimes the case, reduced to powder and made into soup. And having from curiosity tasted, not of the soup, but of the roast; if any person could but divest himself of the idea of eating an insect as we do an oyster or shrimp, without other preparation than simple roasting, they would not be considered very bad eating, even by more refined epicures than the 'Digger' Indians."

Treatment of Persons Struck with Lightning.

E. Merriam, the meteorologist, of Brooklyn, renews the recommendation to apply cold water freely to persons who have been struck by lightning. He says:—"In all cases where persons are struck down by lightning use cold water on the body for hours, do not be discouraged if immediate success is not attained, continue to persevere, and if, after three or four hours drenching, animation is not restored, add salt to the water and continue the drenching. I have an account of a person struck down by lightning on Staten Island several years ago, who was restored after several hours' drenching with cold water. This case alone is sufficient to prompt to exertions in all cases beyond the time usually devoted to restoration of animation in cases where persons have been struck down by lightning."

Hemp is selling at St. Louis for from $160 to $170 per ton, for the best qualities.

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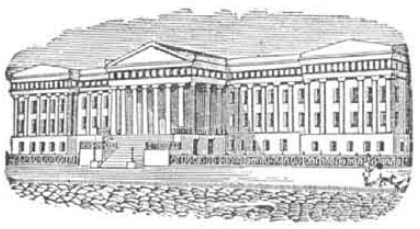

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 23, 1854.

CONSTRUCTING SHIPS FOR SAFETY AND ESCAPE—Joseph Birch, of Cragg Hall, near Macclesfield, Eng : I do not confine myself to the details described, so long as the peculiar character or principle of my invention be retained.

I claim the mode of constructing vessels in two distinct parts, called the parent vessel and the escape vessel, on the principle and manner, and for the purposes described.

LATHES FOR TURNING THE INTERIOR OF HOLLOW WARE—Peter Teale & Chas Tyler, (assignor to Wm. P. Cresson & Co.) of Philadelphia, Pa. Patented in England April 9, 1854: We claim, first, the rest, with or without a friction roller, attached to, or combined with a swinging turning tool, so as to move therewith and bear on the surface on which the tool is operating, as described, for the purpose of keeping the tool in a suitable position in relation to the surface that is being turned and furnishing a proper rest therefor, in all its movements to follow the deviation of the motion of the surface from a true circle.

Second, We claim hanging the tool in a frame that is left free to vibrate, and keeping it in contact with the work by a spring or analogous device, while the axis of the work is fixed or has its motion limited, as described, or what is equivalent, hanging or supporting the axis of the work in such a way as to allow it to vibrate freely but keeping it in contact with the tool by a spring or analogous device, while the tool is stationary, for the purpose of keeping the tool and work in proper contact, but allowing them to yield to any want of truth in the surface of the work, and thereby causing the tool to take about the same depth of cut on all parts of the surface.

[See notice of this valuable improvement in No. 41, Vol, 8, Sci. Am]

MACHINERY FOR PRINTING RAILWAY OR OTHER TICKETS—Joseph Edmondson, of Salford, Eng., and Caleb Haworth, of Marsden. Eng., executors of Thos. Edmondson, late of Salford, Eng.: We claim, first, causing the type box to be raised and lowered to receive the ink and print the tickets, by placing it in a swing frame, receiving motion by any means, as described.

We claim second, operating the inking roller, by attaching it into a slide, which receives motion transversely to the movement of the tickets by means of a lever operated by an eccentric, or other equivalent device, upon the main shaft of the machine, as set forth.

Third, giving rotary motion to the distributing roller by means of a ratchet wheel, click, lever, stud, incline, and spring all arranged and operated as set forth.

Fourth, the stamper or impresser bar, working through the table, as described, for the purpose of pressing the ticket and the inking ribbon up to the numbering wheels.

Fifth, the sliding block and the machinery by which it is gradually lowered in the tube, for the purpose of keeping the tickets even, and in proper numerical order.

And lastly, the general arrangement and combination of the several parts of the machine, as set forth.

[In the last number of the Sci. Am. we published the claim of a Ticket Case patented by the same parties. We hope to illustrate each of them at some future time.]

PIANOFORTE ACTION—Elon A. Lee, of Roxbury, Mass.: I claim, first, the arrangement of the adjusting screw and button, in such a manner that instead of acting against the fixed arm, of the common jack, it is brought to act on a wire or rod, or button, placed in the same manner with the wire, G or M, with its button, as represented, or in any equivalent manner, so that as the under hammer is raised, this wire or rod by itself, or by means of its button, moving in connection with the under hammer, assists by pressing against the button of the adjusting screw, to throw off the fly or movable arm of the jack to the recess of the under hammer at the moment the hammer reaches the string, thus giving a free hopping motion to the hammer, without diminishing the force of its blow against the string, and as the tendency of the spring is at all times to bring back the button against the wire, or button (whichever is used) the extremity of the fly and the under hammer are kept in contact, so that the loose and uncertain movement which, in trilling, is often experienced in common pianofortes is avoided.

Second, I claim the combination of levers, connectors and supporters, by means of which the motion is communicated from the under hammer to the hammer, as represented, or in any equivalent manner, by which I am enabled to dispense with the hammer rails and back catches of common pianoforte actions.

Third, I claim the use of the movable connection with its flange joint, as represented, or any equivalent manner, for connecting the hammer stem with the supporter, which shall allow the hammer stem as it is moved to be carried backward and upward, or in equivalent directions, at the same time, so that the whole course of the hammer stroke shall be nearly at right angles to the string, instead of forming an arc of a circle and producing what is called the drawing movement of common pianofortes.

Fourth, I claim the connection of the damper through the under hammer and the hammer with the opposite arms of a lever turning on a fixed fulcrum, so as to give an opposite motion to each, that is, to throw up the damper while the hammer falls, and vice versa, thus enabling me, by the forces which act at the different extremities of this lever, to put the hammer and damper in equipoise with each other, or otherwise, at pleasure, without affecting the key, so that the touch of the key may be made as delicate as desired.

Fifth, I claim the arrangement of the damper and the wire or rod and the lever connecting it with the under hammer, as described and shown, or any equivalent manner, so as to dispense with all sockets for the damper wires or lifters to pass through, and also with the damper levers, damper covers, and damper buttons of common pianofortes.

SMUT MACHINES—G. B. Turner, of Cuyahoga Falls, O.: I do not claim the crimped circular scouring plates, nor any of the parts, as described, separately; but I claim the stationary and rotating scouring plates, inverted conical screen, and the blast spout, constructed and operating as described.

[See notice of this invention on page 413, Vol. 8 Sci. Am.]

PRIMER FOR FIRE-ARMS—A. N. Newton, of Richmond, Ind.: I am aware that a capping lever, differently constructed and arranged, but operated by the cock of the gun, has before been used, and that various devices have been employed for removing the exploded cap, such of themselves I do not claim; nor yet the rotating cap cylinder, which is an old device.

But I claim the spring forceps or capping lever, arranged and operated by the cock of the gun, in such a manner that the elastic fingers of the said lever picking a cap from the cap cylinder, or its equivalent, during each rise or back movement of the cock, convey it to the gun, or other fire-arm nipple and seat, and hold it thereon, and in working back to their original position relinquish or ease their hold laterally of the cap on the nipple, whereby any tendency to jerk the cap off the nipple by upward movement of the capping lever is avoided; and greater pliancy and facility of adjustment is afforded in the operation of the said lever to insure its perfect action, the said capping lever having a universal joint movement at its fulcrum, or being otherwise equivalently hung or constructed, and being operated by fixed or movable studs and spring, or equivalents, as specified.

And I further claim constructing the capping lever with a crook or arm, arranged so as to gripe the nipple, and by the specified capping action of the said lever, to remove the exploded cap from the nipple, preparatory to a new cap being put thereon, and simultaneously with the picking up of a cap from the cap cylinder or its equivalent, and with the rising of the cock of the gun, or fire-arm essentially as set forth.

[A notice of this primer is published in No. 10. this Vol. Sci. Am.]

PUMP VALVE—Lewis A. Miles, of Hopkinsville, Ohio: I claim the valve united by a double hinge to the chamber, in combination with the tongue, which projecting from the pivot, bears against the top of the valve in rising, and insures its even action upon the seat in falling, as explained, in combination or otherwise with the closing spring, as described.

EXCAVATOR FOR FENCE POSTS.—R. P. Adams, of Clinton, Ill.: I claim the arrangement of the drill gearing and clutch upon and within a frame, pivoted to, and adjustable upon, the sliding and adjustable platform, as set forth.

I also claim making said sliding platform adjustable upon and pivoted to a fixed frame upon a traveling carriage in the manner set forth.

APPARATUS FOR THE MANUFACTURE OF DAGUERREOTYPE CASES, &C.—H. J. Anthony and Frank Phoebus, of New York City: We claim the arrangement of the machine, as described, for forming cushions and bands for the linings of daguerreotype and similar cases; that is to say, so combining a series of clamps with a movable block or table for holding the materials as to effect the folding of the cloth down upon the glue and the pasteboard and the holding it there until the same is set or glued, as set forth.

HONES—Isaac Babbitt, of Roxbury, Mass. Patented in England, March 30, 1834: I do not claim making razor strops curved in one direction, or of portions of the surface of a cylinder, as this has been done before.

Neither do I claim the use of metal of any description as a material for making hones.

But I claim making the grinding surface of hones for sharpening razors convex, or of portions of the surface of a sphere, as described.

RATCHET LEVER—Hiram Baldwin, of Nashua, N. H: I claim the application of a dog and ratchet to any moving lever or wheel, in such manner that the usual application of the moving power to the lever or wheel simultaneously lifts the tooth of the dog from the ratchet on the side to which the lever or wheel is to be moved or the removal of that power allows it to fall back in its place, rendering the lever or wheel immovable except in the manner described.

And I claim the application of this invention not only to the moving levers of machinery generally, but as also applicable to the securing of ships' tillers or rudders, or any like purpose.

CHEESE HOOPS—John Beach, of De Ruyter, N. Y.; I claim the method described, of fastening and unfastening the hoop by means of the roller and hinged hasp—constructed, arranged, and operating together, and in combination with the hinged halves of the hoop, for the purpose set forth, and whereby great facility and expedition is insured in the operation of the clasp, the tightening action of the clasp made effective and durable, and the hoop retained from springing or flying open when pressure is applied to the interior thereof, as specified.

BALANCING WINDOW SASHES—A. T. Clarke, of Lancaster, Pa.: I claim gearing the two sashes together in such a manner that, while the balance of the sashes the one by the other, is preserved, a differential movement is obtained for the two sashes by means of the fixed and travelling pulleys, with their cords, chains or ropes, arranged and operating together with the sashes, as specified, so that on raising the lower or one sash through a given length of space the other or upper sash is caused to descend through a less length of space, whereby a wider opening or air space may be procured for the window at its bottom than is obtainable by the ordinary arrangement referred to and described, in which the sashes balancing each other are made to move with equal velocities, and the top sash thereby caused to contract or partly close the open air space at the bottom, formed by the highly raised lower sash.

[This is a good device for the purpose.]

COUNTERPOISE TO CAST LOCOMOTIVE WHEELS—Henry A. Chase, of Boston, Mass.: I claim casting the counterbalance upon the inner face of the tread of the wheel and independent of the two side plates forming the wheel. This method allowing all the parts of the wheel to expand or contract, independent of the counterbalance and the counterbance itself to expand without exerting any strain on the wheel during the casting or chilling processes, as set forth.

[See notice of this improvement on page 388, Vol. 8, Sci. Am.]

WIND MILL—James Curtis, of Chicago, Ill.: I claim, first, so hanging the pair or sets of sails upon one shaft, extending both ways from the center, as that when one sail of the pair turns to the wind, its fellow shall by the partial turning of the shaft, turn edgewise, to prevent resistance, as described.

I also claim the banging of the sail frame on hollow bearings, in combination with the sails and lines, for the purpose of reefing and furling the sails at pleasure, while the wind wheel is in motion, as described.

SELF-ACTING POWER PRESS—Elias Davis, of Montpelier, Vt.: I claim the peculiar arrangement of the horizontal and vertical levers below the screw and bed plate, in combination with the manner described of constructing and operating the press, whereby an accumulative upward pressure in a straight line can be exerted upon the article being pressed, by reason of its gravity, and that of the moving portion of the press, as set forth.

[See notice of this press on page 92, Vol. 9, Sci. Am.]

MACHINE FOR MAKING BOOK COVERS—Loring Danforth, of Buffalo, N. Y.: I claim the combination and connection of the motions of the two folders, in such a manner that their movements may be used upon the edge of any material such as a piece of junk, board, wood or other substance to fold the cloth, leather, or paper, and form a true, angular, and even edge, in the manner described.

HOT-AIR FURNACES—J. P. Hayes of Philadelphia, Pa: I do not claim admitting oxygen into the fire chamber for the purpose of igniting the gas or gases therein, for several plans have been devised, although not very successfully for the same purpose.

Neither do I claim the rows of vertical hot-air tubes, connected at their upper ends by passages or chambers.

I claim the general construction of the furnace, as described.

[A notice of this improved Furnace is published on page 140 this Vol. Sci. Am. We expect soon to publish an engraving of it.]

FEED WATER OF STEAM BOILERS—Amos Jacobs, of Ithaca, N. Y., I claim the arrangement of the reservoir and weight, in relation to the boiler and the feed pump, as described, whereby the weight of the excess water is used to regulate the supply by the pump, and to provide for its own return to the boiler.

PREVENTING INCRUSTATION IN STEAM BOILERS—John McMullen, of Baltimore, Md.: I do not claim scouring the bottom of an upright boiler by means of chains attached to arms of an upright shaft.

But I claim agitating the water in steam boilers, and preventing incrustations in the same by the action of the spirals, coiled around the bars attached to the arms radiating from the shaft, having an oscillatory rotary motion, and by the spirals coiled around the tubes, having a longitudinal action, as described.

MACHINE FOR SAWING THIN BOARDS—John Myers and R. G. Eunson, of New York City: We do not claim the adjustable and elastic roller beds, for they have been previously used.

But we claim, first, the employment or use of the deflecting plates, one or both placed at the sides of the saw, as shown, for the purpose of preventing the sawed stuff from bearing against the sides of the saw, and expanding the saw kerf, and also for the purpose of allowing a thin veneer saw to be stiffened by plates, one or two, as desired.

Second, we claim the employment or use of the clamps arranged as shown, or in any equivalent way, so as to have a lateral elastic movement independent of the roller beds, to which said clamps are attached, for the purpose of compensating for the varying thickness of different pieces of stuff, and keeping them in a proper relative position to the saw.

Third, We claim the knives or cutters placed in the roller beds, and arranged as described.

Fourth, we claim the employment of an adjustable bed with clamps, as described, in combination with the saw, when the saw has a stiffening plate, in line with said bed, by which the stiffened, or rounded side of the saw is made the line side.

[An engraving of this improvement is published in No. 26 of this Vol.]

APPARATUS FOR MAKING PALLIASSES—James Pigot, of Brooklyn, N. Y.: I claim gauging the size, stuffing, shaping, tufting, and finishing palliasses of different lengths, widths, and thicknesses in a more perfect manner than heretofore, by the employment of a frame, box or former, having one of its sides, made adjustable while its bottom and ends are adjustable and removable, for the purpose of accommodating ticks of different lengths, widths and thickness, and giving them the proper shape and finish. The sides of said box being set off with holes for guiding the tufting operation after the straw has been properly inserted with the tick, all constructed as described.

[See notice of this excellent device on page 404, Vol. 8, Sci. Am.]

CLOVER HARVESTER—T. S. Steadman, of Murray, N. Y. I claim, first, the arrangement of the cutters in combination with the comb operating in the manner and for the purposes described.

Second, the rake, in combination with the cutter, as described.

PROCESSES FOR TREATING HEMP—L. C. Suggett, of Lexington, Ky.: I claim, first, the application of common salt or other saline substance to the steep water, in order to enable the removal and separation of the gum at the most advantageous condition of the lint or hurl in regard to toughness and pliancy, and before the induration of the gum about the fibers, without endangering the strength of the latter by decay.

Second, the saturation of the fiber and expulsion of its moisture by immersion in boiling tar, pitch, or oil, for the purpose of more thorough and intimate application of the preserving substance to the fibers, preliminary to their conversion into twine or cordage.

HYDRAULIC RAM—J. C Strode, of West Chester. Pa.: I claim, first, the arrangement of the tube, in combination with the upper part of the puppet valve chamber and with the air chamber, as described.

Second, the arrangement of four tubes in combination with the top of the puppet valve chamber, as described.

TIRE BENDING MACHINE—R. L. Wright, of Blue Rock, Pa.: I claim the arrangement of the adjustable spur wheel with the rising and falling roller shaft of the wheel, and the concave bed, for the purpose of bending tires of variable sizes in the same machine, as set forth.

LOCOMOTIVE TENDERS—Ross Winans and Thomas Winans, of Baltimore, Md. Ante-dated May 9, 1854: What we claim is the tender with an upper and lower platform in connection with and for the purpose of feeding with greater convenience, the furnace of a locomotive steam engine having upper and lower feeding holes, as described.

BUTTON-HOLE CUTTERS.—Thomas W. Brown, of Boston, Mass., (assignor to William M. Mead, of Boston, Mass.): I am aware that a buton-hole cutter has been made with a sliding and adjustable cloth rest and a knife with a straight edge, which, when the knife was closed was brought down upon it so as to rest throughout its length on the top surface of the cloth rest. I do not claim such a contrivance, my button-hole cutter is constructed and operates different therefrom.

I claim the combination and arrangement of the angular knife or knife edge, the cloth rest and adjusting screw, as described, to operate together, as specified.

I also claim the combining a tubular cutter directly with the aojusting screw, and so that it may perform the functions of a cutter and stop, as specified.

BRACELET CLASP—John Mansure (assignor to Far & Thompson,) of Philadelphia, Pa.; I claim forming of a clasp or fastening for bracelets, or children's armlets, by means of the hinged spring arms, and the slot, and ears, substantially as set forth.

I claim, in combination with the clasp or fastening the strip or bar, for holding the ornament in place, when said strip is brought into, or thrown out of action by the closing and loosening of the clasp, as described.

RE-ISSUE.

HARVESTERS.—William H. Seymour and Dayton S. Morgan, of Rockport, N. Y., (Assignees of Nelson Platt, formerly of Ottawa, Ill.): Patent dated originally June 12, 1854. What is claimed as the invention of the said Nelson Platt, is, first, The combination of a series of removable cutters with the links of an endless revolving chain which carries them successively into contact with the grain or grass to be cut, substantially as described, whether the cutters be contiguous or placed at intervals on the chain.

Second, making one end of each cutter sharp, in order that by pressing against the adjacent end of the next cutter, straw, grass, or other intervening obstructions may be cut in two, and allowed to pass out, the cutters thus freeing themselves from obstructions which otherwise might either choke or break them.

Third, making the cutters narrower at one end than the other, so that as they are carried forward by the chain in a straight line, they may present a series of inclined cutting edges, against which the stalks of grain or grass are pressed by the reel, or the progress of the machine until served, by which arrangement of the cutting edges, their efficiency is greatly increased.

Fourth, I claim the employment of a sweep or turning rake for the purpose of sweeping the grain off the platform in such manner as to deposite it upon the ground with its stalks at right angles, or thereabouts, to the path of the machine.

Fifth, the method of vibrating a sweep rake, and turning its teeth as herein set forth, so as to pass over the grain and to seize and sweep it off the platform, whether the devices employed to effect these movements be such as described, or others equivalent thereto.

Sixth, the method of holding a sweep rake firmly with its teeth at the proper distance above the platform, by a latch or the equivalent thereof, which operating with greater certainty than a weight, spring, or other lastening, not rigid, more effectually prevents the rake teeth from rising, so as to over ride the grain, and at the same time avoids the necessity of moving a heavy weight, or overcoming the tension of a strong spring in elevating the rake preparatory to its retrograde stroke.

Seventh, the construction and arrangement of a sweep rake and the mechanism for operating it, in such a manner that it is carried back and forth and raised and lowered without support at the outer end, thereby rendering it less liable to become entangled with the grain and clogged or broken.

Eighth, the method of changing the frequency of the alternations of the rake or other device for discharging the grain by means of the wheels and pinions, or other equivalent devices, for producing a different movement, for the purpose of varying the size of the sheaves as may be required, as set forth.

DESIGNS.

PORTABLE COOKING RANGE—G. Smith, H. Brown & J. A. Read (assignors to Abbot & Lawrence), of Philadelphia. Pa.

CAST METAL CLOCK CASE FRONTS—Chas. Chinnock, of New York City.

CAST METAL CLOCK CASES—Chas. Chinnock, of New York City.

COOKING STOVES—Jacob Beesley & E. J. Delany, (assignors to Cresson. Stuart & Peterson.) of Philadelphia.

PARLOR STOVES—Jacob Beesley & E. J. Delany, (assignors to Cresson, Stuart & Peterson,) of Philadelphia.

PARLOR STOVES AND OVEN DOOR (two designs)—John F Allen & Joseph Stuart (assignors to Cresson, Stuart & Peterson), of Philadelphia.

SPECIAL NOTICE.—Ten of the applications in the above list were prepared at the "Scientific American Patent Agency." It is well understood that we prepare more applications for patents in this country and Europe than any other agency, and we are not certain that our business in this line is not equal to that of all the other agencies combined. Our business has steadily increased to such an extent as to require additions to our examining force, and with the increased facilities which we are now bringing to our aid, we shall soon be able to manage the entire patent agency business of the country. Respectable agents in this and other cities can find profitable employment in our office whenever their business will not justify them in continuing the expense of a small office practice.

New York being the acknowledged business center of the United States, and with such excellent facilities of communication with Washington and all other parts of the country, it is not an extravagant notion to suppose that business of this kind can be more readily accomplished here than at any other point. Washington is an out-of-the-way place in many respects, and it troubles inventors from a distance to reach it in safety with their models and patent fees. We have always entertained the opinion that a branch of the patent office should be located here. The wants of the inventive genius require it as much as the merchants do a mint for assaying and coining money—and if the government is anxious to show its regard for the progress of improvements, and at the same time reduce its unnecessarily large expenditure in the management of the Patent Office, we will undertake the entire supervision of the branch office, and return to the Treasury a handsome dividend every year.

The reasonableness of this proposition is suggested from the fact that many inventors apply to us to "issue" patents for their improvements, instead of being obliged to stand the unnecessary delay which the Patent Office now imposes upon them.

Gigantic Boring Machine.

The annexed description of a boring machine, is taken from the "Glasgow (Scotland) Chronicle." We think this is the largest machine of the kind in the world:—

"We have frequently had reason to call attention to the wonderful progress of the mechanical arts in Glasgow, as evinced by the magnificent character of the new tools which are every now and then manufactured in the machine works of our city. On no one occasion, however, have we been more impressed with the magnitude of the operation carried on in our ship-building yards or steam-engine factories than when, on Saturday, we were invited to see a newly-finished Boring Machine, which has been made at the Albion Works of Messrs. G. & A. Harvey, M'Niel Street. It is almost within the memory of middle-aged men when the most of the metal boring in Scotland was wrought by hand-wrought drills or by small turning-lathes. The many purposes to which iron is now applied, and the wonderful size to which all parts of machines, especially steam-engines have grown, has put all such petty and primitive tools out of mind as well as out of sight. A mere boring tool, now-a-days, is a much larger machine than many steam-engines were not long ago; and the one which has led us to make the above remarks is much larger than many steam-engines now in operation. This magnificent tool, which has been made for one of Mr. Robert Napier's engine shops, weighs no less than 30 tuns, and stands 25 feet high. The highth of the entablature of the frame is 15 feet, and the width is no less than 14 feet. The frame work of this grand Boring Machine is composed of two upright columns, surmounted by an elegant entablature, below which the wheels, which give power to the boring, are supported on a cross beam of great size and strength. This tool which can work at all speeds, from one revolution in 2½ minutes to 16 revolutions in one minute, is capable of boring a hole in solid iron of ten inches, or a cylinder of 10 feet diameter, and can take any feed, from 1·40th to ⅛ of an inch per revolution of the spindle; and it is capable of boring a hole 7 feet 8 inches in length. This tool is to be used for boring and facing malleable iron cranks, cross-heads, connecting rods, cylinders, air pumps, &c., for marine engines.

The Eclipse.

We never saw so much interest manifested about any eclipse of the sun as we witnessed in this city on Friday last week. It appeared to us that almost every person we met, after 6 P. M., had watched it until he was *black* in the face, especially the point of his nose. It was a grand sight: the sky was clear, without a cloud, allowing of perfect observation during the whole time, from a quarter past four P. M. till six P. M. When full, there was but a small crescent of the sun's disk visible; still it threw such a mass of light upon our planet as to astonish those who expected almost total darkness.

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New Inventions.

Preserving Flour, Meal, Grain, &c.

Thomas Pearsall, of Smithboro', Tioga, Co., N. Y., has taken measures to secure patents, both at home and in Europe, for a very important improvement to prevent flour and meal in barrels from heating. The invention is based upon the theory that vegetable substances, flour—meal, &c., which contain a small quantity of moisture, when packed in barrels or piled in heaps, commence to heat or decompose at the center, owing to the pressure being greatest there, and also to its being furthest removed from the refrigerating influence of the atmosphere. Mr. Pearsall has been engaged for a quarter of a century in manufacturing flour, and is well acquainted with its nature, and the causes of its souring. It is well known to millers that the flour near the outside of barrels will oftentimes be perfectly sweet and uninjured, while that at the center and around it has been heated and soured. To remedy this evil, he removes, as it were, the center of the mass in a barrel or pile, by placing therein a tube (for a flour barrel to cross the Atlantic, one of 2½ inches in diameter will be sufficient) for the circulation of air, and by this means provide a remedy for the evils of flour, &c., heating. The center of the barrel, by this plan, is not the center of the flour, as in the common barrel without a tube, but is between the air tube and the outside of the barrel. This improvement is one of vast importance to our country and other countries. We do not know how many thousands of barrels of flour become sour from heating every year, but the number must be very large. All these involve a heavy loss to our country, for sour flour is unfit for making bread. Any discovery or invention to prevent flour, &c., becoming heated when packed, is of considerable value. This improvement therefore deserves—as it will no doubt receive—the attention of all our millers and flour merchants, and at the same time—as it concerns them as deeply—it should excite the attention of all our people.

Attaching Car Wheels to Axles.

T. G. Walker, of West Farms, N. Y., has taken measures to secure a patent for an improved mode of securing car wheels to their axles, whereby the wheels may be adjusted upon the axles—moved so as to suit the broad or narrow gauges of railroads without moving the axles from their boxes. The nature of the invention consists in having a screw thread cut on each end of the axle—a right hand thread on one end, and a left hand thread on the opposite end of the axle. The centers of the wheels have circular apertures through them, with reversed threads of screws to those on the ends of the axles. The wheels are secured at the required distance apart by means of screw keys which fit in slots in the axle. By unscrewing the keys the wheels can readily be adjusted to suit different widths of track, such as where a narrow track locks with a broad gauge, and *vice versa*.

Safety Whiffletrees.

H. E. Pardee, of Brewerton, S. C., has taken measures to secure a patent for an improvement in safety whiffletrees, the nature of which consists in attaching the traces of the harness to the ends of horizontal sliding rods, which are so attached to a pair of self-adjusting levers crossed and united together near the center of their length by a fulcrum-pin, and at their upper ends by a forked strap leading up to the driver that by pulling this strap the traces can be slipped off the ends of the rods, and the horse instantly separated from the vehicle.

Corn Planters.

Erastus Holt, of Wheaton, Ill., has made an improvement in corn planters, the nature of which consists in arranging a vertical sliding receptacle under the discharge of the hopper, and providing a receptacle with a vertical plunger or discharger, and operating the whole by the action of the propelling wheels through a spring and cam. The receptacle named is constructed and arranged so as to move with the plunger and serve as a cup for containing the seed, until its upper end arrives at the top of the second chamber of the hopper, when it remains stationary and allows of the plunger rising separately and forcing the seed out of the same, and discharging them into the drill tube to be deposited in the ground. Measures have been taken to secure a patent.

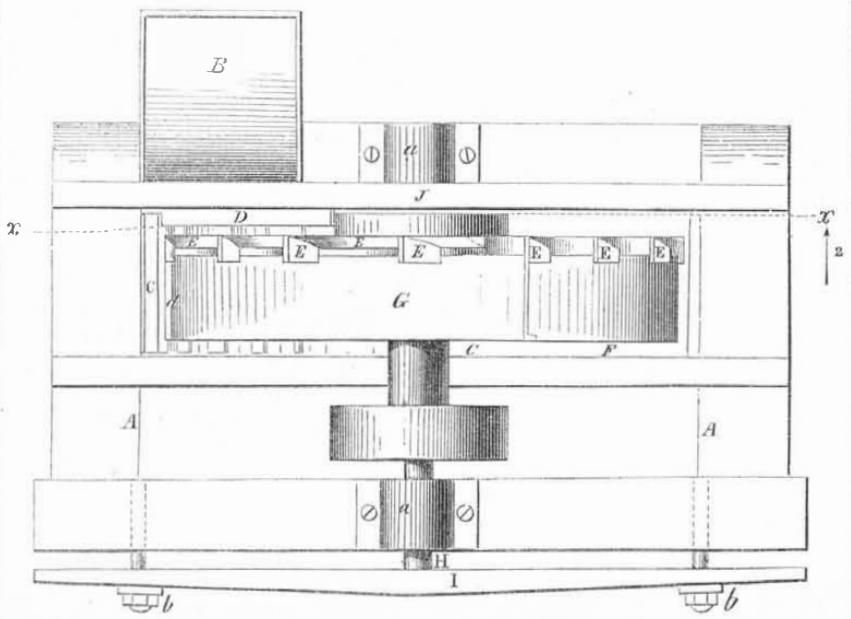
Gas Regulators.

J. W. Hoard, & J. S. Palmer, of Providence, R. I., have applied for a patent for an improvement in the regulators for gas, which have a flexible diaphragm, the opening of the gas valve being governed by the pressure of the gas upon the said diaphragm. The improvement specifically relates to a new arrangement of the valve with the diaphragm, a description of which, without an engraving, it is not possible to give, but more accurate results are to be obtained than by regulators heretofore employed.

Breech Loading Fire Arm.

An improvement in breech-loading fire arms has been invented by Abner N. Newton, of Richmond, Ind , for which he has applied for a patent. The invention consists in certain improvements in the mode of arranging and operating the cock, whereby the repetition of charging and firing can be performed with greater rapidity than heretofore.

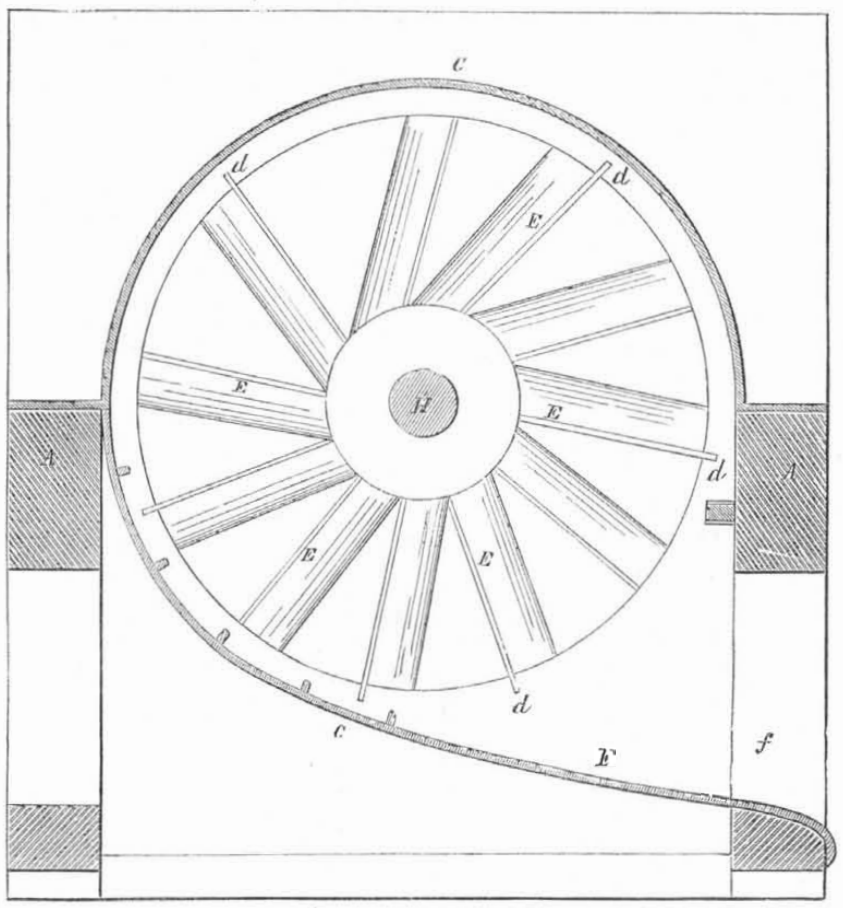
IMPROVED THRASHING MACHINE.---Figure 1.



On the 21st of last March, J. L. Garlington, of Snapping Shoals, Geo., obtained a patent for an improvement in Grain Thrashers, illustrated by the annexed engravings, of which figure 1 is a bird's-eye view, and figure 2 a vertical longitudinal section, taken through the line, *x x*, of figure 1. This view shows the arrangement of the strippers tangential to the axis of the disk. The same letters of reference indicate like parts.

The nature of the invention consists in the employment of a vertical revolving adjustable springing disk, having a series of beaters set tangentially to its axis around its face, and an other series placed radially round its periphery in combination with a stationary concave, having a series of stationary strippers arranged tangentially on the inner face of one of its sides, directly under the passage where the grain is fed in, and another series of strippers placed radially for a short distance round its inner periphery. This arrangement effects several important objects, for by keeping the revolving disk in close relation to the stationary strippers, by means of a spring, an equal and yielding pressure upon the grain is secured, and it is

Figure 2.



saved thereby from being injured, and the machine from choking. And as the said spring is adjustable, the pressure of the disk can be regulated to suit different kinds of material being operated upon. And also by setting the revolving beaters and stationary strippers tangential to the axis of the disk upon a disk, instead of radially upon a shaft, the stripping operation is more effectual, and the feeding in of the article to be thrashed is very rapid at the commencement, and then gradually slower until it falls into the discharge spout.

A represents the frame of the machine; this may be made in the most suitable style; B is a shoe or hopper through which the grain to be thrashed is introduced; it is situated on one side, and near one end of the bar or concave, C, in which the disk, G, revolves, and a very short distance above a set of stationary strippers, D, which are arranged tangentially to the shaft of the disk on the face of the concave, so that when the grain is fed in, it will rest against the strippers, and when the revolving beaters, which are arranged tangentially on the face of the disk, G, to the axis of the same, come opposite the said strippers, they will effectually and rapidly separate the kernel from the stalk at the point of feed, and thereby give the grain time to fall upon the discharge spout, F, and escape through the passage, *f*, and prevent its being carried round in a circle. G is the disk hung fast on the revolving shaft, H, and revolves with it, this disk has one of its faces set with tangential beaters, E,—these beaters by being arranged tangentially to the axis of the disk, G, operate more effectually upon the grain. The shaft, H, is hung in the bearings, *a a*, which are at the top of the frame, A, and is made yielding by means of the spring, I, and consequently the disk is kept in close contact with the side, J, of the concave, C, which is set with the stationary strippers, D, and at the same time is capable of yielding, in case the machine should become clogged or choked. The spring, I, bears on the end of the shaft, H, and is made adjustable by the set screws, *b b*, and the disk can be set thereby to suit different kinds of grain being thrashed. The arrangement of this spring and its adjustability in combination with the disk of beaters arranged tangentially to the axis of the disk, constitute the gist of the invention. There are stationary radial strippers arranged on the inner periphery of the concave near the feed passage: and *d d* are radial beaters arranged on the periphery of the revolving disk, as seen in figure 2.—These beaters and strippers are for rendering the thrashing operation more effectual.

The operation is simple. The grain to be thrashed is introduced through the hopper and motion is communicated to the shaft which sets the disk in motion, and its beaters come in close relation to the strippers and operate with them to strip the grain from the stalk, they being aided by the radial beaters and strippers, the grain as fast as thrashed falling down into the inclined spout and escaping through the passage, *f*.

More information may be obtained by letter addressed to the patentee at his residence in Georgia.

Fire-Proof Buildings.

We have been informed that it is under consideration to construct the N. Y. Historical and Geographical Society's new library building of the fire-proof building stone found in Middlefield Mass. We would suggest that the building be ceiled with this same material, which is now claiming no small amount of public attention, and respecting which we shall have considerable to say in the next number of the "Scientific American."

It was stated at a recent meeting of the Farmer's Club, in this city, that the leaves of coffee have been discovered by chemists to be superior to the berries to be made into a beverage. The essential principle of coffee and tea is the same—that is, both contain theine, but we want something more than mere assertion, to make us believe in the above.

An enormous mass of amber, two feet long, one and a half broad and one foot thick, the largest ever found, has been discovered in Denmark.

We understand that a steam fire engine has been ordered by our city authorities. In Cincinnati a second one, of an improved construction, has been added to the Fire Department.

The "Boston Advertiser" states that a company has been formed and is sinking a shaft in Hooksett, N. H., in search of silver. The company paid $3,000 for the land.

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Scientific American.

NEW YORK, JUNE 3, 1854.

Steeples on Churches.

Architecture is not only a useful, but a fine art, and those who would deprive it of beauty by limiting their views to utility only, have very improper ideas of those things which are founded on the laws of the mind to impart happiness and afford pleasure to man. The gorgeous colors with which nature is adorned—the hues of the bow which spans the blue dome above; the lovely and variegated shades in the plumage of birds and the foliage of flowers, thrill the heart through the sense of sight. We also experience the most delightful sensations from sweet sounds, and derive exquisite pleasure from forms as well as colors and sounds. "The graceful palm tree waving high," the nodding plume of the golden corn, the bounding line of beauty in the statue, and the solemn and soul-inspiring proportions of cathedral and spire, make the mind throb with inexpressible emotions. "Man does not live by bread alone;" he is formed for other enjoyments than those of the mere brute senses, and in every case where the "fine arts" can be combined with the useful, this should be done, as such a combination is founded on the laws of man's nature, and has an elevating tendency. In no case, however, should utility and true usefulness be sacrificed for mere ornament, for this would be a violation of good judgment, and as great a wrong would be committed by so doing, as to overlook ornament and taste, for the mere attainment of the grosser wants. Thus, when a neat shoe or boot can be made as well as a clumsy one, it would be boorish to make the clumsy in preference to the neat one. It would be a savage act to wear the tunic of the African chief in preference to the neat frock-coat of the civilized man, and yet the one covers the person as well as the other. It is the same with respect to architecture—it shows a barbarous taste, or a want of taste, to construct a house or church entirely devoid of ornament and proportion, looking merely to utility, when the laws of harmony, in form and proportion, can as easily be combined with utility and usefulness, as be left out of consideration.

But though some overlook ornament, and argue almost exclusively for utility, none can dispute the fact that man is made for and derives pleasure from the sublime and the beautiful in sight and sound. The question, however, arises here, "are the laws of taste and beauty really natural and universal, or are they not merely matters of fancy, fickle as the fashions?" It is indeed true that the music of the Chinese is without time or melody, and that the Celestial loves yellow silk breeches, the Moslem those of a green color, and the officials at Rome those of scarlet; yet this merely shows a diversity of tastes, and is an evidence of a deep and abiding law in our nature of a craving after the beautiful. This is exhibited ludicrously in some cases, such as some tribes of Indians wearing rings or feathers in their noses, huge rings in their ears; the tatooing of the bodies of the South Sea Islanders, and the painting of the sun, moon, stars, &c., on the bodies of our rude Anglo-celtic Saxon forefathers. We now class such attempts at personal adornment among barbarian refinements, but it would be well for us to look about and see if, in many attempts at ornament and the gratification of the mind for beauty, we do not betray, at the present day, as much barbarism as our painted forefathers. We think this is true with respect to the subject embraced in the title of this article, and our object is to turn public attention in this direction.

Steeples belong peculiarly to christian churches. They appear to have originated in the middle ages, when churches were the abodes of men and the receptacles of wealth, and when robber-law was universal. Erected first as watch towers, architectural genius and taste soon converted original square piles, into graceful and ornamental spires harmonizing with the lofty arched wall of the abbey, and adding a sublime dignity to the whole structure.—There seems to be a prevailing ambition at the present day, in too many churches, to have a steeple tacked on the main building, no matter whether or not it harmonizes with the style of the church, and even though there is not the least necessity for it as a bell or watch tower. A respectable steeple costs no small sum, and a poor lantern-posted spire should never be erected from any consideration. A Grecian church of wood, brick, or stone, with a huge steeple stuck on its front end, is like a beautiful female with a feather inserted in her nose. The number of such churches are neither few nor far between, among us. Money has been expended on them to build useless steeples, for the very purpose, as it were, of making them look ugly. Some of them resemble little boys, who endeavor to make themselves appear like men-soldiers, by wearing their father's grenadier tall-plumed shakos. As the city of New York has grown in wealth, this has been displayed in the construction of many new and grand churches; some of which are classic and elevating in all their details; while others, on which great sums of money have been lavished, neither exhibit harmony of proportion nor unity of style. A reform is certainly demanded in church architecture, especially as it respects the harmony in style, and this, we believe, can be more truly said in reference to Church Steeples, than any other class of structures in city or country.

Engineering Reports;—Railroads.

We are under obligations to the late State Engineer and Surveyor, W. J. McAlpine, for copies of his Annual Reports for 1853, on the Canals and Railroads of New York. By the latter Report, we learn that there are now 2,432 miles of railroads in operation in this State, with an additional length of double track amounting to 664 miles. There are 586 locomotives in use; 834 passenger cars, and 6,895 freight cars. The number of miles run by passenger cars yearly, is 6,594,963. It seems, however, that only twenty-three railroads made reports—seventeen not having reported, among which delinquents we notice the New York and New Haven, and the N. Y. and Harlem Roads. The number of passengers mentioned to have traveled is stated, in one place, to be 2,841,147 for twenty-three roads. One very singular feature of this Report reveals the remarkable fact, that more persons are killed than merely injured: thus, no less than 136 were killed last year, and only 73 injured,—one life lost for every 35,516,116 miles traveled;—one person injured for every 48,834,660 miles traveled. In one year, in England, of 915,092,308 miles traveled, 14 passengers lost their lives by accidents beyond their *own* control, a fact which we have held up more than once against our railroad management, as a stern rebuke for our recklessness and cupidity. It affords us pleasure, now, to acknowledge that in this State there has been a decided improvement in the safety of railway traveling during the past over the preceding year. This is to be attributed to a great improvement in the *tracks*, and increased vigilance, on the part of the superintendants and directors. In a few years from the present date, railway traveling will be as safe, if not safer, in our country, than in any other, and all cause of national reproach for recklessness of life, we trust, will be removed forever.

It is scarcely possible to estimate the great changes which have taken place in traveling facilities, in our country, since 1836,—the year when the previous May eclipse of the Sun took place. Only eighteen years have fled away since then, and what changes have been effected. The progress of events continually flowing on, are scarcely observable in isolated facts, but when we add up the whole column, and draw out the sum total, we find enough to more than astonish even those whose office and duties lead them to be more keenly observant of such things. In the year above named, there were only fifteen miles of railroad in operation in New York, and not over sixty, we believe, in all our broad continent: now there are more than thirteen thousand in operation in the different States; and with single and double tracks there are now three thousand and ninety-eight miles in New York alone.

The improvements made for comfort and speed in traveling are beyond all calculation. In that year, in the merry month of May, it took us two days of excessive toil and trouble to get from Albany to Utica; while now we can travel the same distance, in comfort and at ease, within nearly as many hours—the gain in time being about 2,400 per cent.; while the saving in the bare cost of traveling expense is more than 100 per cent. The improvement in the character of the railroads, their construction and that of the rolling stock, engines, cars, &c. —cannot be described--the difference being so great. The fifteen miles of the only railroad in New York then, between Albany and Schenectady, was a single track of the old flat rail; there was a steep incline at Albany and another at Schenectady; these were operated by stationary engines, and funny-looking things they were. The locomotives were exceedingly mulish in look and action; the cars were of the short, dingy, pigeon-coop character, and the rate of traveling was not even the respectable pace of six miles per hour.

Even in 1845—nine years ago—the majority of railroads in this State were miserable in construction, being laid with the flat rail,—the terror of all running engineers. We hope and trust that the improvements during the next eighteen years will be as great as during the past; we do not see any reason for not anticipating such results.

Feathering Paddle Wheels.

Many patents have been taken out for the purpose of obviating what is termed "the water lift" of the common radial paddle wheel. When the paddle wheels of steamboats are in operation, they apparently lift up great quantities of water behind them, churning the waters as it were, and throwing them up behind at a dead loss of power and speed to the vessel. This is more apparent than real. The faster a paddle wheel revolves, the greater appears to be the quantity of water lifted by the paddles, but really much of this water is raised by the partial vacuum formed by the rapid passage of the wheel through the air and water. Thus, for example, by revolving a simple belt of cloth over pulleys, one at the top and the other at the bottom of a well, quite a volume of water is carried up, not from the water adhering to the belt by any attractive quality, but owing in a great measure to the partial vacuum formed by the belt, while moving rapidly through the water and the air. Well, to obviate, as we have before stated, the "water lift" of paddle wheels, which was generally supposed to be caused by the blades actually lifting the water up as they revolved, the most successful plan ever presented to the public was stated to be that of the "feathering or Morgan's paddle wheel." It had been applied to many of the British steamers, and was the kind of wheel with which the unfortunate San Francisco was supplied—the only American steamer ever furnished with it. In England they have purchased their experience of the feathering paddle wheel at no small cost, for quite a number of war vessels were furnished with it, and so were some of the newest and best steamships of the Royal Mail Steam Packet Co. The weight of the feathering wheel is more than double that of the common kind, and it costs more than double the price. It was stated a few years ago by those interested in this wheel, that it improved the speed of vessels to which it was applied, from 15, to 18 miles per hour, and that the vessels on which it was used moved without any of that vibratory or shaking motion peculiar to common steamers. This has turned out to be only the favorable statements, without the unfavorable ones being mentioned, for it has been found that the same steamships to which the feathering wheels were applied have been greatly improved in every respect by going back to old radial paddle wheels, even of a reduced diameter. We hope this will be a warning to any of our people who may be indulging in feathering paddle wheel dreams. At the Annual Meeting of the stockholders of the above-named company, which took place on the 13th of last month, the facts brought out in relation to the ruinous effects of the "feathering paddle wheels" on their steamships were perfectly overwhelming.

Excavating and Rock Drilling Machine.

I. M. Ferres, editor of the "Gazette," Montreal, Canada, writes to us for information in regard to the best dirt excavator for deep cutting and also for drills for drilling and taking out rock. Being interested to some extent in railways, he desires this information, and thinks it might favor parties owning such machinery to communicate with him. It affords us pleasure to present his request, as no doubt some of the readers of the "Scientific American" will be able to supply his wishes.

We cannot dismiss this subject without calling Mr. Ferres' attention to the prohibibition policy of his government in respect to granting patents to American inventors. As matters are now conducted no inducement is held out to them to offer their inventions in Canada. Were this otherwise, we apprehend there would be no occasion for our friend of the "Gazette," or any of his countrymen to make the above request. Let the Canadian Parliament pass an act allowing patents to issue to inventors without any miserable discrimination, such as now exists, and at a reasonable fee, and we venture to suggest that the people would feel their interests greatly promoted thereby. It is true that our government at Washington obliges every subject of Great Britain to pay $500, but this we have denounced and shall continue to denounce, as an unworthy act, until it is repealed, and something more sensible and enlightened is substituted. We stand prepared to join Mr. Ferres in bringing about a new order of things, and shall be pleased to find a few seasonable hints on this subject in the columns of the "Gazette."

Models for the Patent Office.

Inventors, in preparing their models with a view of making applications for patents, will please observe the following instructions which have just been issued from the Patent Office:

"Models for the U. S. Patent Office must be fastened in all their different parts by other means than by gluing, as such will not endure the handling and atmosphere to which they are necessarily exposed."

Inventors will also please to remember that the size of their models should not exceed one cubic foot in dimension, and that the law requires their names to be affixed thereto in a permanent manner, either by lettering with paint in a neat manner, or by affixing thereon an engraved plate.

Printing Paper is Scarce.

Owing to a great scarcity of the raw material, it has become very difficult to procure printing paper at anything like a fair price. We have latterly been compelled to use a poorer quality than we did at the commencement of this volume, and yet pay more for each ream. This is extremely vexing, but we cannot help ourselves. The paper-makers are very saucy, and are ruling the publishers just as they please. The press is no longer independent, and the public might just as well understand the matter first as last. We surrender for the present, and wait for the "good time coming." We hope, however, that the paper dealers will forgive us when we caution every good housewife to be extremely punctilious in saving every scrap which can be turned into paper, by this means we hope in time to humble the lordly pretensions of the manufacturers. Cannot some of our country friends try the virtue of meadow hay, straw, corn husks, and all kinds of forest leaves, and let us see if some relief cannot be brought to the down-trodden publisher?

Dewitt C. Lawrence, formerly Chief Clerk of the Patent Office under Ewbank, has been recently appointed an Assistant Examiner. He discharged the duty of Chief Clerk very ably and will no doubt fulfill his new position with credit.

A. E. L. Belford, Esq., our London agent and correspondent, was elected a member of the London Society of Arts, at its last sitting, April 19th.

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Foreign Correspondence.—The Asteroids—Aurora Borealis, &c.

PARIS, May 5, 1854.

MESSRS. EDITORS—Thinking that a few *on dits*, respecting the scientific novelties in this headquarters of the French, or, I may say, European savans, would not be unacceptable to your readers, I propose to send you a brief notice of some of the topics which have recently come before the Academy, or have been discussed in scientific circles.

Regnault has recently published a letter from Melloni, describing the result of his new researches into the magnetism of rocks. He has found out that besides being feebly attracted by the magnet, they have a certain amount of polar magnetism, which makes them capable of acting by attraction and repulsion on the poles of a neighboring magnet. M. Melloni accounts for the fact not having been before noticed, on the ground of the great weakness of the repulsive action, which renders it necessary that the experiment should be made at a very short distance from the magnetic needle, and this proximity developes, in the nearest part of the mineral, attractive forces of re-action, whose intensity is greater than the repulsive action natural to the rock. In conclusion, M. Melloni states that he has invented an instrument which is capable of exhibiting the feeble magnetism of mineral substances, and which he calls the magnetoscope.

Le Verrier has recently read an interesting paper before the Academy upon the asteroid planets, their eccentric orbit and irregularities. From a complete examination of the secular variations of the elements of this group of small planets, he deduces a number of new and and interesting propositions. All of their orbits are especially characterized by eccentricities, and by considerable inclinations, or, in other words, each of these small planets, in its translation movement around the sun, describes an oval, and greatly lengthened curve, so that the planets, of the several orbits, so far from coincidency among themselves, as if traced on the same plane, are greatly inclined to each other. It therefore follows, from the establishing the existence of these eccentrics and inclinations, that the hypothesis started by Dr. Olbers, that the asteroids (some of which he discovered) were derived from the wreck of a larger planet that had exploded, is incompatible with the real truth, inasmuch as the forces necessary to launch the fragments of a given body in such different routes, would be of such improbable intensity as to render it mathematically absurd. As the mutual actions of the celestial bodies belonging to the same system, give rise to disturbing influences, which, in the course of time, alter their primitive orbits, Le Verrier resolved to examine whether the present eccentricities and inclinations of the asteroids might not have been caused by disturbing forces gradually accumulating in the lapse of time. He soon ascertained that in the annular zone between the orbits of Mars and Jupiter there are two very distinct regions, so far as regards the bodies situated within them. The line of separation between these two zones is about twice the distance from the sun, as compared with the distance of the earth, or about two hundred millions of miles. Beyond this distance the perturbations cannot permanently increase the eccentricity or inclinations of the bodies which have been permanently located therein; but within this distance the conditions are changed, there being neither stability in the form, or inclination of the orbits. At present there are twenty-seven small asteroidal planets known to us, the most of them being telescopic, and out of this large number there is not one which invades the dangerous field. The nearest of them all manages always to keep at so respectful a distance, as to maintain a constant and unvarying orbit. Le Verrier concludes his paper by advancing three propositions, which completely destroy Olber's hypothesis; 1st, the eccentricities of the orbits of the asteroidal planets, cannot receive from any perturbations to which they may be exposed, but very slight changes; and these eccentricities (great as they now are), have and always will be constant. 2nd. The same truth applies to the inclination of the orbits; so that the degree of the inclinations and of the eccentricities, is readily deducible from the primitive conditions of the formation of the group of these smaller planets. 3rd. These propositions are true only for distances from the sun superior to 2·00—the distance of this earth being taken as the unity. But there would be no stability situated between Mars and a distance of 2·00. Flora is found at a distance of only 2·20 from the sun, and is the nearest of the smaller planets. The question may now be asked, "Are there are any within the disturbing zone?" We cannot tell, because they are never at the same time sufficiently near us, and sufficiently disengaged from the solar light.

M. Le Verrier, as the result of his calculations, assigns as the "superior limit" of the total mass of all the small planets which circulate between Mars and Jupiter, a sum not exceeding one-quarter of the mass of the earth. By this, however, he says, that he does not mean to definitely indicate any, or even a probable, equivalent to their mass, which may be inferior to one-fourth the mass of the earth. He was like a man who wished to weigh a mass of lead; and had a pair of scales, but no weight except a weight of one hundred pounds; and the lead being less than one hundred pounds, his weight would enable him to ascertain this fact with a certainty, but would not allow him to find by how much it was less than one hundred pounds. So the astronomer, when he wishes to gauge this planetary mass in his astronomical scales (the orbit of Mars) with the grand axis of the curve as the scales' needle or index, he knew that the scales would not turn unless they were charged with a mass of matter equal to one-quarter of the mass of our globe; the scales in this instance did not turn, and he therefore knew the mass of these scattered planets does not equal one-quarter of the mass of our globe, but how much they are less than that, he cannot say.

Le Verrier, at the present time, is unquestionably occupying the first place among the scientific men of France, and ably fills the chair of Director of the National Observatory, left vacant by the death of Arago. Notwithstanding, he is at the same time among the most unpopular of all the members of the Academy.

De la Rive, the celebrated natural philosopher of Geneva, has recently published a long memoir on the Aurora Borealis, with speculations as to its origin, and the incidental phenomena which accompany it. He attributes them wholly to electro-magnetic causes; the terrestrial globe, he says, uniformly acts as a large magnet, and its magnetic poles do not coincide with the poles of rotation; furthermore, the atmosphere is continually charged with porative electricity, which is accumulated in its superior regions, and this electricity (whether it is disengaged by the action of vegetation on the surface of the earth,—or by the continued evaporation caused by solar heat, this being as yet an open question,) must be expended and neutralized, or the electrical tension of the atmosphere, instead of being contained within its actual limits, would go on continually increasing. In our latitudes, and under the equator, the discharge is effected by rains, winds, thunderstorms, &c.; but these are in their nature inconstant, and nature is obliged to resort to a more regular and constant method of effecting the electrical neutralization. De la Rive, therefore, supposes that the porative electricity which abounds in the superior regions of the atmosphere, moves with perfect freedom in them from their extreme rarefaction, and that the electric fluid takes advantage of the facility to go to the nearest pole. Here it returns to the earth by a continued gentle flow, which is greatly aided by the immense quantity of frozen particles floating in the air; then, instead of returning to the ground in a single flash, as we ordinarily see it passing from clouds of liquid particles, it descends to the earth by gradually passing from frozen particle to frozen particle, exciting, by partial discharges, innumerable small aigrettes, which singly are invisible, and yet whose total sum together presents the beautiful appearances of the aurora as we know it. These currents having once reached the earth, give rise to other currents, which in turn act upon the magnetic needle. These electrical discharges taking place constantly, but with varying intensity, according to the state of the atmosphere, the Aurora Borealis must be a daily phenomena, although with a varying intensity; its visibility extends also to varying distances, and depends also upon the clearness and transparency of the atmosphere during the night.

It may be asked why the phenomena is concentrated around the circumference of a circle, and is prolonged in parallel columns, and is placed on the line of the magnetic axis of the globe, and why it is animated with an undulating motion from the West to the East—all these phenomena accompaning the Aurora; these questions are answered by a slight change introduced into the well-known experiment of the "electrical egg," which consists in transmitting electricity from one to the other pole in an exhausted receiver. De la Rive magnetizes at will one of the two poles: when neither are magnetized the common phenomena take place, but as soon as either of them become magnetized, the light is distributed so as to form a ring, very much in the form of the Aurora, and presenting, like it, a gyratory motion. In the equatorial regions, where frozen particles are wanting, De la Rive considers that the discharge takes place by the direct or indirect action of this law. B.

[The information furnished by our intelligent correspondent, respecting the asteroids, presents the strongest arguments against the nebular hypothesis ever published in our country.—ED.

Devulcanizing India Rubber.

We have often been asked if "we knew of any process for abstracting the sulphur and other matters from vulcanized india rubber," as there were thousands of pounds of it in the shape of old car springs lying waste at every railroad machine shop in our country. The annexed described process is the subject of a recent English patent granted to W. Christopher and G. Gidley, of London, for devulcanizing all articles like car springs, &c. We have selected the description from "Newton's London Journal," and it will no doubt be universally read with great interest.

In manufacturing vulcanized india-rubber, or articles formed of that material, it is desirable, in many cases, after the usual operations of vulcanizing the caoutchouc or the manufactured articles themselves, to withdraw or separate some portion of the sulphur, or of the excess of sulphur that remains interposed in the pores of, or is combined with, the caoutchouc; or, in other words, to adjust the relative proportions of the sulphur and the caoutchouc in the vulcanized material for either ordinary or any special application of it.

It is desirable also to be able to work up or re-employ refuse vulcanized india-rubber, such as the parings or cuttings, &c., that accumulate in manufactories of that material; or by some ready and economical method of treating such refuse to separate from it the sulphur, or so much sulphur as leaves the caoutchouc in a condition to be acted upon by its usual solvents, and consequently restoring it to a condition admitting of its being re-worked in any form, and, if required, re-vulcanized, either with sulphur or other material.

Now this invention consists in macerating the vulcanized india rubber in a hot solution of carbonated alkali, or in a solution of hydrate of lime, or in hot water in which caustic lime is suspended, till through the action of the alkali or of the lime, the requisite quantity of sulphur is abstracted; that is, either as much sulphur withdrawn as reduces the relative proportions of the sulphur and the caoutchouc to those required for any special purpose, or so far removes the sulphur as to leave the residual material in a condition to be acted on it for reformation into manufactured articles, and of being re-vulcanized with sulphur or another material, if required.

The vulcanized caoutchouc, to be treated, should, when it admits of it (as when the refuse parings or cuttings, &c., are to be worked up,) be comminuted or cut up into small pieces; as the action of the alkali or of the lime is the more rapid in proportion to the extent of surface it acts upon, or the thinness of the pieces it has to penetrate. And as the higher the temperature of the solution or of the water the quicker is the operation, it is preferred to use a boiling heat in the process, though a lower temperature will subserve the same purpose finally, requiring only a greater length of time. When the caoutchouc has a large quantity of sulphur to be removed, it is preferred, from reasons of economy, in the first place, to boil it along with the caustic lime, which takes up the sulphur lying at or near the surface of the mass or pieces of the caoutchouc; then to remove the solution so produced, and the lime, and boil with a solution of carbonate of soda. After some time the whole of the excess of sulphur or uncombined sulphur may be thus abstracted, and acted upon or rendered soluble in either the lime or the carbonated alkalies. In this way, after some time, and when the process is carried far enough, the sulphur in excess is abstracted, together with other matters, constituting impurities that may have been formed in the process of vulcanizing or afterwards manufacturing; the caoutchouc will then be found to be soluble in turpentine, naphtha, or any other of the usual substances employed to dissolve or soften caoutchouc; boiling or heating the vulcanized material in a solution of carbonated alkali alone will abstract the sulphur, and leave the material in a workable condition; and lime-water, or lime and hot water, will, in time, fulfill the same purpose when used alone; carbonate of potash will equally well abstract the sulphur, but it is not so economical as the soda salt.

On the addition to the vulcanized caoutchouc of the carbonate of soda, carbonic acid is evolved, and a sulphuret or polysulphuret of the alkali gradually formed; and this product can be applied to several useful purposes. But should the sulphur compounds thus formed with the alkali, and which are partly given off and liable to be diffused through the atmosphere during the operation, be found in any case to be objectionable, this is remedied by adding to the hot solution, during the process, some metallic oxyd, as, for instance, oxyd of copper, or some metallic carbonate capable of forming with the sulphur, and it is abstracted by the alkali an insoluble sulphuret; thus fixing the sulphur in a form of combination that is unaccompanied by the disagreeable emissions given off by and peculiar to the alkaline and soluble sulphurets.

In producing the re-action between the sulphur of the vulcanized material and the alkali or the lime, the patentees, in some cases, find it advantageous to steam, or otherwise than by hot water to heat the mixed materials; and for some purposes they vary these processes for effecting the union between the sulphur and the alkali or the lime, by employing either of those agents in its dry state, or with only a little water present; and, when mixed by any mechanical contrivance with the vulcanized india-rubber, steaming or otherwise heating the mixture, and finally removing the sulphuret, so mixed, by washing with water.

A New and Beautiful Tree in Oregon.

Mr. Brooks, writing from Olympia, Oregon, says:—"A strange and beautiful tree has lately been found here, which is from one to seven feet high, with a leaf resembling that of a pear, and the trunk and branches those of the orange. The upper side of the leaf is coated with gum, of the consistence of oil, and it is highly fragrant, the odor resembling that of bergamot or ripe fruit. It will be a highly ornamental and desirable addition to our gardens, as it is an evergreen.

The Teeth of Indians.

The editor of the "Family Dental Journal," while on a northern tour last year, visited the St. Regis Indians, and examined their teeth with a view to see for himself, if they differed from those of the whites. He found that those who were temperate had better, while those who were intemperate had worse teeth.

An aquatic bird called the "Crested Grebe," incapable of land locomotion, was picked up a few days ago in a garden at Carbondale, Pa., whither it had probably been blown during the late heavy gales.

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TO CORRESPONDENTS.

We would thank some of our readers who have duplicate copies of No. 17 and 18, Vol. 8, Scientific American, to forward them to this office for the benefit of those who are minus those numbers.

J. B , of N. Y.—Your device for tightening bed cords by means of ratchet wheel secured to the shoulder of the rail with a spring dog fastened to the post, is a well known device for the purpose. We have frequently seen it applied.

B. M., of N. H.—It is doubtful about your being able to secure a patent for a guide board having elevated transparent letters. From the windows of our office we can see a large sign on the roof of a clothing store having the same kind of letters as are shown in your sketch. The change of use could not be considered patentable.

D. V., of Ohio.—Yours will appear next week.

Money received on account of Patent Office business for the week ending Saturday, May 27 :—

J. A., of Pa., $55; W. G. L , of N. Y., $50; F. E. H., of Ct., $30; J. M. T., of Mass., $25; J. B. W., of Mass., $30; L. A. D., of Ohio, $25; E. M., of N. Y., $25; M. J. C., of N. Y., $30; D. H., of Ct., $30; C. D., of Ohio, $25; L. S. M., of Mass., $50; H. N. & J. O. B., of Ct., $25; R. K., of Mass., $100; J. C. T., of Mass., $25: D. & S., of N. Y., $30; J. J., of N. Y., $30; E. B. T., of N. H., $30; N. S. S., of N. Y., $30; R. G. P., of N. J.: $25; A. D., of L. I., $100; J. S., of Ga., $20: M. S., of Ct., $60; D. T. C., of N. Y., $25; S G , Jr., N. Y., $25; D & H , of N. J., $45; W. G. L., of N. Y., $55; D. N., of Mass., $350; W. J. S., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 27 :—

A. J. G , of Mass. (2 cases): J. M. T., of Mass.; S. G., Jr., of N. Y.; S. M., of N. Y.: L. A. D., of Ohio; E. M., of N. Y.; R. W. G., of N. Y.; D. T. C., of N. Y.; W. W., of N. Y.; D. & H., of N. J.; W. G. L., of N. Y.; C. D., of O.; H. N. & J. C. B., of Ct.; W. J. S , N. Y.; R. G. P., of N. Y.

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American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express, or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

J. B. & W. F. POAGUE'S PATENT PLAN FOR HYDRAULIC CEMENT PIPES.—This is the cheapest and most durable piping ever offered to the public, for conveying or elevating water any distance desired, and can be enlarged or diminished to suit the flow or column of water, and the strength increased in proportion. The pipes can be either moulded in the ditch, just as they are intended to remain, or molded in a yard, and when hardened transported any distance, and the pieces united in the ditch by cement mortar. The pipes can be readily attached to the ram or any kind of hydrant. They have been thoroughly tested by a number of persons, and all persons desiring further information, or wishing to purchase rights for any unsold State or counties, can get a printed circular containing directions for constructing and using said molds, with certificates of their utility, by applying, (post-paid) to the undersigned patentees. We are prepared to undertake and execute jobs of piping in this and the surrounding counties. J. B. & W. F. POAGUE. Address Fancy Hill P. O., Rockbridge Co., Va. 38 2*

GWYNNE'S PATENT REACTION CENTRIFUGAL PUMP AND FIRE ENGINE.—Adapted to any situation, unlimited in power, certain in action permanent in use, and withal so low in cost that they are rapidly superseding all others. Call and be satisfied of these facts at the office and warehouse of
UNION POWER COMPANY OF U. S.,
33 Broadway, removed from 24, opposite present stand.
38 2*

MACHINISTS TOOLS—Power Planes 4 to 16 feet long, weight 1,000 to 10 000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description of prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

ROTH'S ANTI-CHLORINE.—Geo. F. Wilson, of Providence, R. I., has been duly appointed Agent for the sale of "Roth's Anti-Chlorine" for the New England States. Persons desiring to obtain licenses for their own use, or to purchase his very superior preparation for the removal of chlorine from bleached fabrics and paper stuffs, will please make application to him. HACKER, LEA, & CO., Philadelphia, Dec. 1. 1853. Mr. Wilson's office is at 22 Canal street, third floor.
38 3*

BRASS FOUNDRY FOR SALE—On easy terms, having a good share of business, and a fine location. For further information address box 905, Detroit, Mich. 38 5*

BACK VOLUMES of the Scientific American for sale by Stokes & Brother, Philadelphia. A sett of the Scientific American, from Vol. 3 to Vol. 7, inclusive Price $2 75 per volume, bound. STOKES & BROTHER, Arcade, Phila. 38 3

MACHINERY DEPOT.—J. W. HOOKER, 36 Lloyd street, Buffalo, N. Y., commission merchant, and dealer in all kinds of machinery, is prepared to fill orders for Lathes, Planing Machines, Drills, Universal Chucks, Car Wheel Borers, Rubber and Leather Belting, Oils, Millstones, Portable and Stationary Engines, Boilers, and Machinery generally. 38 4*

METALLIC TAPE MEASURES—40 to 100 feet—a new article, metal web; stretches less than any other Tape, well prepared to stand water; well made leather boxes, divided in feet and inches, and links, or feet and tenths, and links; also all steel measures, 33 feet, winding like a Tape Measure into a box. Mathematical Drawing Instruments, Spy Glasses, &c. Our priced and illustrated catalogue sent by mail free of charge. McALLISTER & BROTHER, No. 48 Chesnut st., Philadelphia, Pa. 37 4*

NORTH AMERICAN ROCK DRILLING CO.—Now offer for sale the best Rock Drilling Machine in use. Said machines, with one man and two horses, will do the drilling of twenty men. Address their agent
HENRY GOULDING,
37 3* 14 Andover st, Boston Mass.

"KNOW NOTHINGS!"—Startling Developements: astounding, ludicrous, and alarming! Just published, an Expose of the "Know Nothings,"—The Degrees, Signs, Grips, Pass-Words, Charges, Oaths, Initiation, awful Penalties: together with the objects, tendencies, and alarming increase of this Secret Order throughout our threatened land, with striking wood-cut illustrations. Copies will be mailed to any address free of postage. Price—12 1-2cts per copy; 10 copies for $1. N. B.—Our Mammoth Catalogue of books and prints will be mailed to any address gratis. Address
STEARNS & CO., Publishers.
37 4 163 Fulton st., N. Y.

LATHES AND PLANERS—Of much approved construction, manufactured and kept constantly on hand, by LEONARD & CLARK Newburgh, Orange Co., N. Y. 37 4*

TO TINMEN—And Workers in other Plate Metals. For Sale—One of the New York Style of Rotary Presses, which cuts out the blanks and turns up the edge at the same operation. This Press works with great rapidity, and has been timed at the rate of 60,000 per ten hours—geared to work by hand or with power. Sold only because the owners have enough other presses for their work, and for no defect. There are several dies made to fit the press. Price will be made low. Inquire or address No. 78 North front st., Philadelphia. 37 3*

ANASTATIC PRINTING—On a new Principle.—Persons desirous of learning the art of reproducing perfect impressions (equal to the original) from old prints can get full instruction by addressing A. G. S., care of Charles Fisher, 196 Mott st. (rear building), N. Y. Post-paid letters, inclosing $20, will find prompt reply. 37 3*

WOODWORTH'S PATENT Planing, Tonguing, Grooving Machines.—Double machines plane both sides, tongue and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers.
JOHN H. LESTER,
37 15* 57 Pearl st, Brooklyn, L. I.

FOR SALE—A valuable India Rubber Patent Right. For further information address
FRANCIS D. HAYWARD,
36 4* Malden, Mass.

FOR SALE—By the Baltimore and Ohio Railroad Co., 24 Crate Cars, adapted to railroad purposes, which will be sold at a reasonable price. For further information apply to SAMUEL J. HAYES, M. of M., Baltimore and Ohio R. R, Co., or BRIDGES & BRO., 64 Cortland st., New York. 34 tf.

GRIFFITH'S PATENT VALVE COCKS for Steam Engines, dyeing establishments, or Chemical Works, They are warranted superior to any valve or cock in use. They are easily repaired without taking them from the pipes, they are made any size from 3-8 in. up to 7 1-2 in., either screwed or with flanges. Responsible agents for the sale of these valves wanted in New York. Boston, Pittsburg, and all the principal cities in the Union. The rights to manufacture in the different States for sale. Parties interested will address J. GRIFFITHS, City Tube Works and Brass Foundry, 15 North 7th street Philadelphia. 34 8*

FULTON FOUNDRY AND MACHINE WORKS S. W. corner of Green and Morgan streets, Jersey City, N. J The subscribers are prepared to contract for Sugar Mills and Mining Machinery of every description. Horizontal Steam Engines of various sizes constantly on hand. All orders executed with promptness
34 13* FIELDS, BROTHER & CO.

ENGINEERING—The undersigned is prepared to furnish plans for ever description of machinery water wheels, turbines, and to consult with parties to make experiments and scientific investigations, and to superintend the construction of works. Agent for Mellier's Patent for making White Paper from Straw.
VICTOR BEAUMONT,
33 10* Consulting Engineer, 74 Broadway, N Y.

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 2, 2 1 2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters, &c., they can be used with wood, bituminous, or hard coal; a 2 1 2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS.
25eotf Machinery Agent, 12 Platt st, N. Y.

CLOCK'S FOR CHURCHES, COURT HOUSES, &c.—Regulators for Astronomical purposes, Jewelers; also Time Pieces for Session Rooms, Railroad Stations, Offices, &c., which for accuracy of time and durability have proved (it is believed) equal to any made in Europe or this country. Glass Dials for illumination, and other kinds furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, N. Y. 10eowtf

IRON FOUNDERS' MATERIALS, viz: Pulverized Sea Coal, Black Lead, Soapstone, Anthracite and Charcoal Facings. Also, best imported Fire Bricks, Fire Clay, Fire Sand, and Moulding Sand, for sale by
G. O. ROBERTSON,
13 13eow* 135 Water street, corner of Pine.

MACHINERY.—S. C. HILLS, No. 12 Platt-st., N. Y. dealer in Steam Engines, Boilers, Iron Planers Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's, and Law's Planing Machines; Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines; Belting; Machinery Oil, Beal's Patent Cob and Corn Mills; Burr Mill and Grindstones; Lead and Iron Pipe, &c. Letters, to be noticed, must be post-paid. 27tf eow

PASSAIC WORKS—Passaic street, Newark, N.J.—Manufacture and have on hand, Steam Engines of the most approved construction and various sizes. Also Machinists Tools of all kinds: Lathes, Planing Machines, Drills, &c., machine for Enameling Carriage Cloth, and Machinery of every description. Jobbing Work promptly attended to. Address GEO. WATTS, Passaic Works, Newark, N. J. 32 4eow*

THE CRESCENT FOUNDRY & MACHINE CO. Bridgeport, Conn., make to order Stationary Steam Engines from 8 to 150 horse power, large double acting Force Pumps for water works, Iron Planers, Engine Lathes built in the most substantial manner and UNCOMMONLY HEAVY. Machinery in general and all kinds of Steam Boilers. Having a large and extensive stock of millgearing and other patterns, the accumulation of 18 years, they are prepared to furnish castings at short notice. Any work ordered from this Company will be guaranteed equal to any made in this country. They would call attention to a large lathe which they build, designed for Railroad Machine shops for turning of drivers. They also make a very large and heavy lathe with screw feed, designed for Machine Shops in general. They are now making a vertical Engine of new design from 8 to 10 horse power, which will require but the small space of 4 feet square (the bed being 2 4 by 34 inches) and with a vertical boiler will require only 4 feet by 8 feet.
18 12 1am 1y*

UNITED STATES PATENT OFFICE,
Washington, May 16, 1854.

ON THE PETITION of Richard Montgomery and Lewis W. Harris, of Sangerfield, New York, praying for the extension of a patent granted to them for an improvement in the Mill for Breaking and Grinding Bark, for seven years from the expiration of said patent, which takes place on the 12th day of August, 1854,

It is ordered that the said petition be heard at the Patent Office on Monday, the 24th of July next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing. All testimony filed by either party, to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 14th of July; depositions and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the argument, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American, New York; Post, Boston, Massachusetts, and Inquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the 24th day of July next, the day of hearing.
CHARLES MASON,
Commissioner of Patents.

P. S—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 37 3

UNITED STATES PATENT OFFICE.
Washington, April 18 1854.

ON THE PETITION of Charles Spafford, administrator of George Spafford, late of Windham, Connecticut, praying for the extension of a patent granted to him on the 2nd day of September, 1840, for an improvement in "machines for boiling and washing rags for manufacturing paper," for seven years from the expiration of said patent, which takes place on the 2nd day of September, eighteen hundred and fifty-four.

It is ordered that the said petition be heard at the Patent Office on Monday, the 13th of August next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 3d of August: depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Pa.; Scientific American, New York; Daily Courier, Buffalo, N. Y., and Post, Boston, Massachusetts once a week for three successive weeks previous to the 13th day of Aug. next, the day of hearing.

S. T. SHUGERT,
Acting Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 36 3

1854—MICHIGAN CENTRAL R R. LINE,—D. W. WHITING, Freight Agent for Railroad and the enormous new steamers "Plymouth Rock," "Western World," and "May Flower,"—and also General Forwarder, will forward freight of any kind, by any mode of conveyance, to any destination, with dispatch and at the lowest rates; has trucks and machinery and (having been a practical machinist has all the skill necessary) for the safe and expeditious handling of any machine or heavy article, such as Locomotives, Steam Engines and Boilers, Engine Lathes, Church Bells, Safes, &c. Mark packages care "D. W. Whiting, Buffalo;" goods thus consigned take precedence with the above boats in all cases. 32tf

KETCHUM'S IMPROVED MOWING MACHINE with entire change of Gear. The only successful grass cutter now known; warranted capable of cutting and spreading from ten to fifteen acres of any kind of grass, per day, in as good a manner as is done with a scythe. Orders filled at our establishment in Buffalo, N.Y., or at J. MAYHER & CO.'S, and R.L. ALLEN'S, Water street, N. Y. HOWARD & CO.,
31 8 Proprietors.

MODELS—Of all kinds made and warranted to answer the requisitions of the Patent Office. Post-paid communications strictly confidential. Address J. G. ARNOLD, Worcester, Mass. 31 10*

PORTABLE FORGES AND BELLOWS—(Queen's patent). The best forge in market for Blacksmiths work, Boiler Makers, Mining, Quarrying, Shipping, plantations, Contractors on Railroads and Public Works, Coppersmiths, Gas Fitters, &c., Also an improved Portable Melting Furnace for Jewellers, Dentists, Chemists, &c., both of which are constructed with sliding doors to protect the fire from wind and rain when used out doors, and for perfect safety and free escape of smoke when used indoors. They are compact for Shipping. Circulars with particlars and prices will be forwarded upon application. Cast iron Columns, for building constantly on hand. Jobbing, Piano, and all kind of work promply executed. FREDERICK P. FLAGLER,
29 10* Sole Manufacturer, 210 Water street, N. Y.

MINING MACHINERY—Of most approved construction, furnished by FRED'K COOK & CO, Hudson Machine Works, Hudson, N. Y. 15 6m

STAVE MACHINERY.—The "Mowry Stave Cutter and Jointer Combined," which received the highest award at the Crystal Palace, is the only machine that ever undertook to joint a stave properly at the same time that it was cut and dressed, without rehandling. One man tends the machine and turns out from a solid block of wood ninety staves a minute, ready for the truss hoop. It is not only the best in use, but for slack work we challenge the world. For machines and rights in New York, apply to CHARLES MOWRY, Auburn. For machines and rights in other parts of the United States, apply to GWYNNES & SHEFFIELD, Urbana, Ohio. 29 tf

PROPOSALS will be received at the Engineer's Office, Huntington, Pa., until Monday, June 5, for the Superstructure of Bridges and Trestle Work of the Huntingdon and Broad Top Railroad. Plans and specifications will be exhibited at the Office, or the contractor may furnish his own plan with his bid.
36 3 S. W. MIFFLIN, C. Eng.

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U. S, at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 tf

TO CANDY MANUFACTURERS—For sale or rent a beautiful three story brick dwelling and store house, together with a two story brick shop, used for the manufacture of candies. The whole is well built and finished, and the shop has furnaces all in working order. The store room is handsomely furnished with glass casing, shelving, counters, and two superb bow windows, and handsome gas light fixtures. Possession of the store room, cellar, and shop can be had immediately. Terms reasonable; price $5000; rent $300, or for store room, cellar and shop, $200. Address, post paid, A. F. WARD, York, Pa. 35 4*

STAVE AND BARREL MACHINERY—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

KRUPP'S BEST CAST STEEL—Suitable for Mint and Plater's Rollers, also of large size (72x18 inches diam) for rolling iron, copper or brass. Pistons of Steam Engines, and Shafts for Steamboats, not exceeding six tuns weight in one piece. Also the celebrated Cast Steel Axles and Tire, made from a solid bar without welding. Agents, THOS. PROSSER & SON,
33tf 28 Platt st, New York.

PORTABLE STEAM ENGINES—GEORGE VAIL & CO., Speedwell Iron Works, Morristown, N. J., LOGAN VAIL & CO, No. 9 Gold st, N. Y., are prepared to furnish Portable Steam Engines from four to eight horse power, with locomotive boilers. These engines are recommended for their simplicity, durability, and economy, being made from the best materials and designed for practical use. They are placed on wheels convenient to be moved from place to place, and are shipped in working order: for plantation use, machinists, or others wanting small power, these engines will be found superior to any others in use, A Silver Medal was awarded at the late Fair of the American Institute, and a premium in cash of $100 at the Maryland State Fair, held at Baltimore in October last. Persons writing us by mail will be particular to give their address in full.
21 38*

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe; they are of the best workmanship. Price of Lathe with count shaft and pulleys, $155 cash. Cuts, with full description of the lathe, can be had by addressing as above, post paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 35tf

$100 REWARD—To the Manufacturers of Bank Note Paper. The Executive Committee of the Association of Banks for the Suppression of Counterfeiting, hereby offer a reward of One Hundred Dollars for the best specimen, in the opinion of the Committee, of Bank Note Paper, of not less than five hundred sheets, which may be submitted to them on or before the 1st day of January next. All paper submitted, except that selected by the Committee, to be returned to the persons submitting the same.
J. M. GORDON, Secretary.
Boston, Mass., March 31 .1854. 31 15*

SCREW CUTTING MACHINES. with P. W. Gates' Patent Dies—The subscribers keep constantly on hand three sizes of the above-named machines, to wit—No. 1 machine, 10 sets dies and taps from one-half to two inches, $350: No. 2, 8 sets dies and taps, one-half to one and a half inches, $250; No. 3, 6 sets dies and taps, three-eighths to one inch, $150. Cash on delivery at shop. P. W. GATES & CO.
Chicago, Ill. 27 15*

HUDSON MACHINE WORKS and Iron Foundry—at Hudson City, N. Y., are prepared to contract for castings for railroads, bridges, buildings, gas pipes and posts, water pipe, cast-iron ornamental floors, cannon, &c. Steam engines and boilers, high and low pressure, sugar mills, Cornish lifting and forcing pumps for mines; stamps, mortars, and mining machinery;—also superior hydraulic pumps and presses, and superior machinists' tools made to order. Especial attention given to the making of patent machines. Orders by mail will receive prompt attention. New York Office No. 18 Exchange Place.
FREDERIC COOK & CO.
F. COOK, H. McCLELLAND. 27tf

MACHINERY FOR SALE—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.
Portable Mortising Machine, $20
Bushnell's Iron Drill, $25
All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

WHITE STRAW PAPER—For Newspapers.—A Mellier, the patentee, having established his process at Nixon & Xeinour's Mills, Manayunk, where the paper for the Philadelphia Ledger has been made daily from straw since the 12th of April, is now ready to sell licenses and make arrangements for establishing the process elsewhere. Apply to A. MELLIER & V. BEAUMONT, 74 Broadway, where specimens of half stuff, stuff and paper may be seen. 33 10*

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.
CHARLES W. COPELAND,
35 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 300 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
27tf GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American.
16 1y*

SEWING MACHINE—The Office and Warerooms of the Wheeler & Wilson Manufacturing Company, for the sale of their Sewing Machines, is removed to No. 343 Broadway, where the public are invited to call and examine them in practical operation. 31 13*

BAKER'S IMPROVED BOILER FURNACE—As used at the Crystal Palace: orders received for Stationary, Marine, or Locomotive Furnaces on this plan, and also for the rights for towns, counties, or States: certificates can be shown of furnaces in use for stationary, marine, and locomotive furnaces, with saving from 30 to 50 per cent. in fuel. J. AMORY,
25tf General Agent, 28 State st, Boston, Mass.

NORRIS WORKS, Norristown, Pa. The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping, and Portable Engines, and Mining Machinery of every description.
41 1y.* THOMAS, CORSON & WEST.

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Scientific Museum.

History of Steam.

About 280 years B. C., Hero, of Alexandria, formed a toy which exhibited some of the powers of steam, and was put in motion by it.

A. D. 540, Athenius, an architect, arranged several cauldrons of water, each covered with the wide bottom of a leathern tube, which rose to a narrow top, with pipes extended to the rafters of the adjoining building. A fire was kindled beneath the cauldron, and the house was shaken by the efforts of the steam ascending the tubes.

In 1543, June 17th, Blasco de Garay tried a steamboat of 309 tuns with tolerable success, at Barcelona, Spain. It consisted of a cauldron of boiling water, and a movable wheel on each side of the ship. It was laid aside as impracticable A handsome present, however, was made to Garay.

The first idea of a steam engine in England, was in the Marquis of Worcester's "History of Inventions" published in 1663.

In 1698 patents were granted to Savery for the first application of the steam engine.

In 1705 Newcomen, Cawley, and Savery made the first steam engine in England.

In 1736 Jonathan Hulls set forth the idea of steam navigation.

In 1769 James Watt made the first perfect steam engine in England.

In 1778 Thomas Paine first proposed this application in America.

In 1781 the Marquis Jouffroy constructed a steamboat on the Seine.

In 1789 Wm. Symington made a voyage in one on the Forth and Clyde Canal.

In 1802 this experiment was repeated.

In 1782 Rumsey propelled a boat by steam at New-York.

In 1787 John Fitch, of Philadelphia, navigated a boat by a steam engine on the Delaware River.

In 1793 Robert Fulton first began to apply his attention to steam.

In 1793 Oliver Evans, a native of Philadelphia constructed a locomotive steam engine to travel on a turnpike road.

[We have been requested to publish the above brief history of the early efforts of steam engine inventors, as being useful for future reference by our readers. We cheerfully do so with the necessary corrections to make it truly historical.

Hero's steam engine was like a Barker Water Wheel driven by steam—a rotary. It was revived 15 years ago in this State. A book was published in Leipsic in 1597, which described a rotary steam engine like Hero's.

In 1615 Solomon De Caus, a French engineer, published a work describing the power of steam to force water, but not by an engine.

The claims of Blasco de Garay are not entitled to much weight, as they were only first given to the world in 1826, and said to be from an old manuscript discovered in the Archives at Simancas, Spain.

In 1628, Branca, an Italian mathematician, propelled a wheel by a jet of steam from a boiler.

Before Symington made his experiments he was engaged by Patrick Miller, of Dalswinton, and made an engine to propel a boat for that gentleman, who published a pamphlet on the subject in 1787.

We were not aware before that Thomas Paine was claimed as being a proposer of steam navigation.

John Fitch propelled a boat by steam on Collect Pond, in this city, about the date specified above. We never read or heard of Rumsey doing so.

The first permanently successful steam engine in the world was that of James Watt, in 1769; and the first permanently successful steamboat, for which Watt built the engine, was that of Robert Fulton, in 1807, in New York.

The Human Hair.

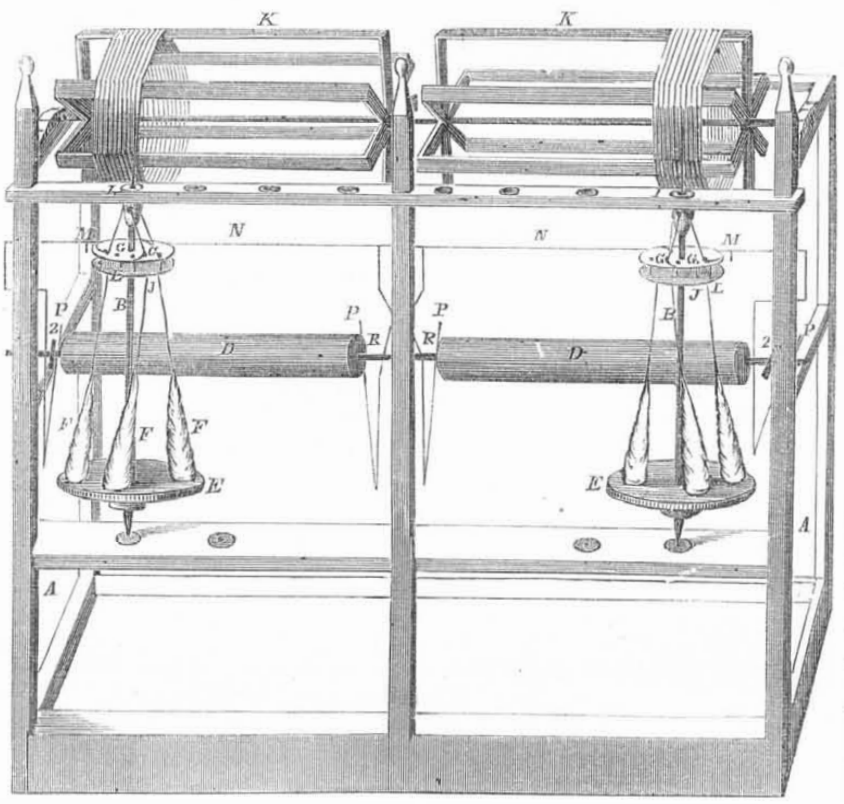
P. A. Browne, of Phila., whose physiological investigations of the hair are well known, has applied his theory to the question, whether the people whose remains are found in the mounds on our continent are identical with the existing race of American Indians. His conclusion is, that they are—which he founds upon the identity of form between the horizontal section of the hair of the former, and that of hundreds of specimens of the latter.

Mr. Browne divides the hair of the human family into the cylindrical, the oval, and the eccentrically elliptical, as characteristics of the various races.

Mr. Browne has examined the hair of the mummy of a young American Indian, supposed to be a female of about ten years old, from Pachacarnack Temple of the Sun, five leagues from Lima, South America. This cemetery has not been used since the Spanish conquest, previously to which (according to Herrera) it was kept sacred for the nobles and other dignitaries of Peru. The hair of this Indian, which is in good preservation, is cylindrical, diameter 1-640 of an inch.

On the other hand he has submitted to the most critical investigations the hair found upon the mummies of Egypt and Thebes, and has found them to be oval.

DOUBLING AND REELING MACHINERY.



The annexed engraving is a perspective view of an improvement in the guiding of the thread and stop-motion of doubling and reeling machines, secured by patent to George Levan, of Bearville, West Earl Township, Pa.

The nature of the invention consists in having hinged wings placed in a double disk, through which the threads pass from the bobbins to the reel, the said wings pressing gently on the threads to keep them taut, while, when a thread breaks, the wing which presses on it flies back, and is brought in contact with a projection on a sliding rail, which acts as a shipper to stop the spindles and reel of the division on which the thread has been broken.

A is the frame; B B are the spindles, provided with pulleys at the foot, driven by bands from a horizontal drum, D, in the usual manner of driving spindles. On each of these spindles there is a disk, E, provided with two or more vertical pins, on which turn freely the bobbins, F, and from these bobbins the threads pass through guides or slanting apertures, G, in a double disk above, and corresponding with the bobbins, F, and from these all the threads pass through a center guide, I, at the head of the spindle, where the threads pass into holes or apertures, and are united and twisted together by the rotation of the spindle, B; the threads then pass over proper guides to the reel, K, back of the spindles on which the hanks or skeins are formed. This double disk is formed of two metal plates, soldered fast in their centers to the shaft or spindle, B, having six or more vertical pins, J, dividing the plates, and between two of the pins each thread passes, there being two pins, J, for each thread. A lever or wing, L, operates on a hinge between two of the pins, J, for the purpose of keeping the threads properly stretched, and also when a thread is broken or bobbin empty, it, the lever, flies back against one of the pins, J, by the revolution of the double disk, and is brought in contact with a projection, M, upon the sliding rail, N, which stops the spindle and reel of one division, without delaying the operation of the remaining division and spindles, thus providing an effectual stop-motion.

The sliding rail, N, extends along the length of the machine, and it has a projection, M, opposite to each spindle. The ends of this rail extend downwards; and to each is attached a horizontal lever, which throws the spindles and reel of a division out of gear, by the lever being pressed downwards by a pin, Q, which unclutches the drum, D, running through the main shaft, R. The opposite lever draws the rail again back to its proper place by shifting the drum.

Further information may be obtained by letter addressed to George Levan, Bearville, P. O., West Earl Township, Lancaster Co., Pa.

Boiling Eggs, and Making Tea on High Elevations.

The deep narrow valleys and ravines which slope down from the elevated plateau of Erzeroum, are unhealthy and pestilential in the extreme, while the inhabitants of the upper country enjoy good health enough. Here the corn returns about five fold to the labor of the sower; one being retained for seed, four bushels is the extent of the profit of the husbandman for one which he had sown. The summer, though very short, is hot and parching, the thermometer being usually about 84, though it rises occasionally, I think, to nearly 90. The cold in winter is commonly 16 degrees below zero of Fahrenheit, and is often colder. The mercury in my thermometer, which was not calculated for such a climate, quietly retired into the ball in the autumn, and never came out again while I remained at Erzeroum. The great highth of the town above the sea was exemplified in a practical manner to me on my first arrival. I was in a state of constant wrath about the tea; the tea was excellent, of the very first quality, but the decoction thereof was always a failure. In vain was the kettle placed on the fire by my side; in vain did the semavar, the best of tea-urns, boil and steam. Double, double, toil and trouble! the fire burned, and the cauldron bubbled, but the tea was vapid. As for the eggs, I don't know how long it took to boil them till the white was fixed. The reason of all this occurred to me one day when I put my finger into some almost boiling water, which by no means scalded me—for water boiled at 106 degrees of Fahrenheit, as we were between 7000 and 8000 feet above the level of the sea; and consequently, though boiling and steaming away, it was not hot enough to produce the effects of water boiling at the heat of 212 degrees, which is the temperature at which it boils in London.—[Armenia, by the Hon. R. Curzon.

LITERARY NOTICES.

A Full and Authentic Report of the Testimony on the Trial of Matt. F. Ward, etc.—Messrs. D. Appleton & Co., 346 Broadway, have sent us a pamphlet of 176 pages, purporting to be a full and authentic report of the testimony on the trial of the said Ward, for the murder of Prof. Butler. It is not within the range of our duty to comment upon cases of this character, but we cannot resist the feelings which spring upon us, after examining the pamphlet, that it is calculated to mislead the public, unless they regard it as incomplete in some (as we regard them) important particulars The testimony, for aught we know to the contrary, may be accurately reported, and the speeches of Messrs. Crittenden. Helm, Marshall, and Wolfe, for the defence, may be, and doubtless are, given in full, but it will scarcely answer the demands of strict justice, to regard it as "full and authentic," while the speeches of Mr Carpenter—who was the chief prosecuting officer and Attorney General for the Commonwealth—is omitted, together with that of his associate, Mr. Gibson. The report cannot satisfy the public, since it only contains the speech of Mr. Allen for the Commonwealth, and we cannot advise our readers to purchase it, expecting to form their judgment of Ward's innocence therefrom.

Hydropathic Family Physician.—This is the title of a new book well printed, and illustrated with about 300 engravings, and numbering more than 800 pages, published by Fowlers & Wells, Broadway, this city. The author is Joel Shew, M. D., distinguished for his knowledge and practice of the Water Cure System. It embraces the whole range of the ills of life, and gives full and complete directions for the practice of hydropathy in all required cases, but it is not limited to the water cure. It treats of all diseases, and prescribes the mode of treatment. It is a very able and excellent work, and one which we can heartily recommend to every family; it is everything that its name purports to be.

The Edinburgh Review.—The last number of the Nestor of British Reviews, just published by Leonard Scott & Co., No. 79 Fulton street, this city, contains an article on Mormonism, and presents more condensed information about that sect, than can be found elsewhere. It contains eight original essays, the last one being on the consumption of food in Britain, by which we learn that the people of that country consume twice as much sugar as they did ten years ago. This Review still maintains its high reputation as in the days of Jeffrey and Hazlitt, the one its editor, the other a constant contributor.

Old Blackwood.- Blackwood's Edinburgh Magazine for May, just republished by Leonard Scott & Co., No. 79 Fulton street, this city, contains eleven original essays, reviews, and tales. A short tribute to Prof. Wilson is brim-full of affection. Wilson in earlier years was long the animating spirit of Blackwood.

The National Magazine for June is a fine number. It contains several excellent illustrations, and an interesting variety of reading matter, The editor, Rev. Abel Stevens, is a well known writer, and in his management of this Magazine he exhibits the right sort of talent. The next number commences a new volume. The publishers, Messrs. Carlton & Phillips, conduct the publishing department in the extensive and well known "Methodist Book Concern," Mulberry street, this city.

Maury's Sailing Directions.—We are indebted to G. Manning, of this city, through whom we have received from Lieut. Maury a copy of the sixth edition of his Sailing Directions.

We are also indebted to Lieut. Maury, for Vol. 3, of the Astronomical Observations, made by him at the National Observatory, Washington.

The New Englander.—The May number of this able quarterly, published by F. W. Northrop, New Haven, Conn., contains nine original essays, and a number of minor able reviews of new books.

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